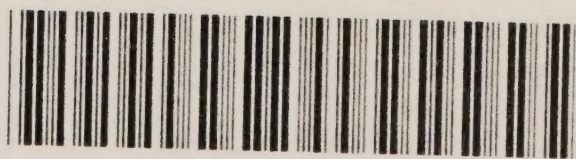
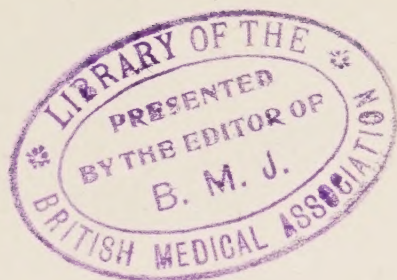


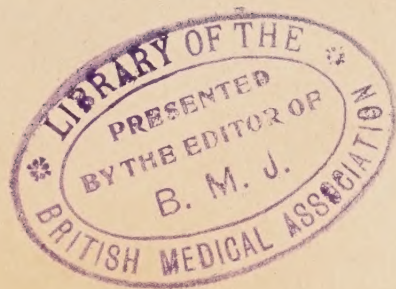
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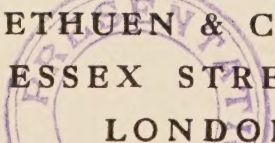
J. WALTER CARR, M.D.

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS, LONDON



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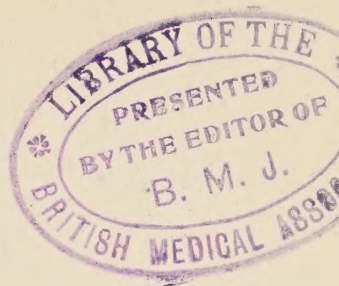
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PREFACE

LONG life is a result of a number of different factors. To a considerable extent it depends upon hereditary tendencies, and upon the environment in which a man is brought up and the nature of the moral and physical training to which he is subjected. Over these things he has little or no control. Even in so important a decision as the choice of an occupation he has often but little voice, although some occupations are obviously much more healthy than others. In this volume no general rules can be laid down on the subject, for in doubtful cases the decision as to the suitability, from the health standpoint, of any particular occupation can only be made after consultation with a medical man, preferably with the patient's family doctor, who knows all his history and morbid tendencies.

When he attains to man's estate and becomes more or less his own master there are still, especially in town life and under the complex conditions of a highly artificial civilization, an

increasing number of matters deeply affecting his health and life which depend upon the corporate action of the community and with which he has very little to do—questions of drainage, water supply, the amount of sunshine and fresh air which reach his house, the purity and freshness of much of his food, the efficient isolation of cases of infectious disease, and so on.

Nevertheless, a man still remains largely the master of his own destiny; there are a great many things that he can do for himself to lengthen or to shorten his days, and it is with these that this book almost exclusively deals.

J. WALTER CARR

LONDON, *January* 1916

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I

HOW TO LIVE LONG

CHAPTER I

THE DESIRE TO LIVE

FROM earliest times length of days has been associated with riches and honour as one of the greatest earthly blessings which man can enjoy. The instinct is doubtless correct ; there is always something unsatisfactory in a premature ending to life ; we feel that it is unnatural, even unjust, that men should “not live out half their days.” Moreover, longevity usually means that at any rate fairly good health has been enjoyed for at least the greater part of life, and without good health all else counts for comparatively little. True, the attainment of old age is by itself far from being a particularly high or noble ideal, and the names of many of the world’s greatest heroes and heroines would never have been inscribed in the Valhalla of fame had their main object been to live many years.¹

¹ These words were written just before the outbreak of the European war, which gives to them a greatly added emphasis.

Nevertheless, for the average man or woman good health is essential if they are to make the best and fullest use of their lives, and the maintenance of good health during the working period of life is the most important factor in leading to longevity. Let it not be thought that the care of the body is the chief end of life ; our ideal should be to make the best and fullest use of all our powers both physical and mental. Since, however, this can only be done through the medium of our bodies, then the better the condition in which we keep ourselves physically, the more completely and fully are we able to carry out all the highest purposes of existence.

The fine physical condition and the hypertrophied muscles of a prize-fighter are by themselves worthy of no greater admiration than a fat pig or a prize ox in a cattle show ; in fact, the so-called lower animal is probably the more useful member of society, and the crowds who flock to see two pugilists pounding each other would doubtless enjoy and benefit as much by a gladiatorial contest, a cock fight, or a bull fight had they the opportunity of attending one. The better part is to strive, in accordance with the old maxim, to maintain the even balance of the sound mind and the sound body, remembering that both are equally essential if we are to do our duty fully in the world.

All life's luxuries and most even of its blessings

have some drawback, few indeed are those which add no sorrow therewith ; the great law of compensation works everywhere, and the gift of length of days is no exception to the rule. As the years go by the old man has to say of friend after friend, " I shall go to him, but he shall not return to me." Few, moreover, can hope altogether to escape the increasing infirmities and restrictions of later life ; the words of the Psalmist are still true : " If by reason of strength our years be fourscore, yet is their strength labour and sorrow." Even if physical sufferings are escaped, yet an existence protracted into a mere vegetative condition hardly deserves to be called life. Nevertheless, the more wisely we use the earlier periods of life, the greater are the chances that its prolongation will be a time of comparative happiness and the sunset unclouded ; the greater the probability that death will come, as ideally it should, peacefully and undreaded, like sleep to a tired child.

CHAPTER II

HEREDITY AND ITS INFLUENCE ON LONGEVITY

THE duration of life, apart from accidents, which of course are numerous and to a great extent unavoidable so far as the sufferers themselves are concerned, depends mainly upon two factors: first on the kind of tissues with which we start life, that is the factor of Heredity, and secondly on the way in which during life we use our bodies, and the influences—good or evil—to which we expose them, that is the factor of Habit and Environment. It has been truly said that the first essential for a man who wants to live long is to choose long-lived parents; for undoubtedly the people who attain to advanced age are for the most part those who come of a sound stock and inherit healthy tissues, provided that throughout life they have lived wisely and carefully under good hygienic conditions. The people who die prematurely are usually those who inherit poor tissues or some special liability to serious disease, and who have used their tissues badly by evil habits or unhealthy con-

ditions of life. Between these two extremes come the majority of mankind, the people with tissues more or less healthy who use them more or less well or badly, with the varying results which we constantly see in daily life around us. Not only, however, are we unable to influence our own heredity, but also, during the earlier and in many respects, so far as the prospects of longevity are concerned, the most important years of our lives, we have no control over our environment and but little over the habits we are forming; these are largely determined for us by the conditions of our homes and by the character of the training we undergo there and at school. So much is this the case that we might well be disposed to take a fatalistic view of life, to disclaim all personal responsibility, to say that we are but the creatures of circumstance, and that by the time we reach years of discretion the probable duration of our lives has already been determined for us. Instinctively, however, we revolt against the idea that we are mere automata, we feel and we learn from history that however strong the grip of heredity and of early training may be upon us, and it would be foolish to under-estimate their importance, nevertheless we retain very largely the power of shaping our own destinies, and how much we actually can do ourselves to determine our future health and happiness will be shown in

subsequent chapters. Even if we inherit special morbid tendencies we can do much to combat them, if only we clearly recognize the particular dangers to which these tendencies expose us. Moreover, just in proportion as the great laws of heredity diminish to some extent our responsibility for ourselves and for various physical ills which may befall us, by so much the more do they increase our responsibility for our children. They make it incumbent upon us to take such precautions as we can to avoid having children in whom our own morbid tendencies may be reproduced or even accentuated, and to endeavour so to train them that when the responsibility for their future passes from us, they may at least start life as well equipped as we can make them, both mentally and physically, to resist the perils to which they will be exposed.

It may be well to note here some of the diseases to which heredity may specially predispose us. There are two which show themselves at an early age, and are very commonly transmitted directly from the mother to her sons, whereas the daughters usually escape, but unfortunately often transmit the disease to their male children. These two diseases, far apart in all respects except for these curious facts as to inheritance, are hæmophilia—a tendency to severe and, sooner or later, fatal bleeding, either spontaneous or from very slight injury—and a peculiar form of gradual wasting

of the muscles, culminating in almost complete paralysis; the wasting being often disguised for a long time by replacement of the muscular fibres by fat and fibrous tissue. These conditions are quite incurable, and the actual victims nearly always die before they are old enough to have children, but, as already stated, the diseases are transmitted by the unaffected females of the family, and can only be stamped out by these not having children.

Heredity shows itself markedly in a tendency to premature decay of certain organs or tissues, a tendency which may manifest itself in almost any part of the body. We notice it in such a trivial matter as the proclivity to premature baldness seen in some families, but it becomes very serious when it affects, as is not uncommon, such vital parts as the heart and the arteries. It is not at all unusual for several members of a family to die off one after another in later middle life, especially between fifty and sixty years of age, as a result of such a premature decay of the arteries, often associated with a gouty tendency or inheritance, death frequently being brought about by an attack of apoplexy. As Sir William Osler tersely puts it, "In the make-up of the machine bad material was used for the tubing." For individuals with such a proclivity the danger is best met by leading a particularly abstemious life in regard to alcohol, tobacco, and food, par-

ticularly meat ; by taking plenty of exercise in the open air, and by being most careful always to keep the bowels freely open.

Another manifestation of heredity is in the direction of nervous instability, what is known as a "neurotic inheritance." It is not necessarily, or even usually, a tendency to one particular disease which is inherited, but an increased vulnerability of the nervous system as a whole, which may show itself at different ages and in very varied fashions, according to the special conditions or character of any particular mental strain or stress to which these people may be subjected. For instance, a neurotic inheritance may mean an increased tendency to various forms of insanity, to epilepsy, to dipsomania or other moral delinquencies, to severe hysteria, to simple nervous break-down, to suicide, or even to certain forms of diabetes. The connexion between epilepsy and insanity is particularly close ; the offspring of epileptic parents are very liable to become insane. Children of a neurotic stock require a specially careful upbringing ; as much fresh air as possible ; often withdrawal from home influences, which are particularly harmful if the mother is highly neurotic ; and avoidance of severe and especially of competitive brain-work. Extra watchfulness is required during the period of puberty, and great care is necessary in the choice of an occupation, which

should be one not involving any great mental strain, worry, or anxiety, although it is essential both for boys and for girls that they should have adequate as well as congenial daily work.

Another manifestation of heredity is shown by an increased liability in certain families to infections by various disease-producing microbes. This is especially noticeable in regard to tuberculosis and rheumatic fever. In the causation of diseases of this class we have to consider both the seed, *i.e.* the microbes giving rise to the disease, and the human soil in which they grow and multiply. For a good many years after the discovery that the tubercle bacillus is the essential cause of all tuberculous lesions, too little importance was attached to the conditions requisite for its successful growth in the human body. We know now that we are all of us exposed at some time or another to tuberculous infection, and that whether actual disease results or not depends upon the condition of our bodies and upon the strength of our resistive powers when such exposure occurs ; to a considerable extent this is a matter of heredity. Extra precautions are necessary in the upbringing of and in the choice of occupation for children of a tuberculous stock, in order to keep their general health at the highest possible level, and to avoid as far as may be the chances of their being exposed to tuberculous infection, especially in a concentrated

form, as, for instance, from close association in badly ventilated rooms with those suffering from consumption, particularly in an advanced stage. In all diseases in which inheritance plays an important part we note that the stronger the hereditary taint, the earlier the age at which the disease is likely to show itself. We see this in gout and still more in rheumatic fever, for in a large proportion of children who suffer from the latter disease, the father or mother has had it also. When parents are rheumatic they should be particularly warned never to disregard any pains in the limbs or joints of which their children may complain, and not lightly to dismiss them merely as "growing pains." It must be remembered that in childhood the joint symptoms of rheumatic fever, which are so conspicuous in adult life, are usually very slight, sometimes hardly noticeable, but that there is usually some damage to the heart even in the mildest attack, and if this should be overlooked, and consequently go untreated in its early stages, permanent mischief of the gravest character may result. Any sore throat should also receive prompt attention, as it is often the precursor of a rheumatic attack. Note too that St. Vitus's Dance is now known to be one of the manifestations of rheumatism, and carries with it exactly the same liability to serious heart mischief as does an ordinary attack of so-called rheumatic fever.

There is no doubt that individuals who come of a markedly neurotic stock ought not to beget children, especially if the family history shows a definite proclivity to epilepsy or insanity, and most of all if they themselves have suffered at all from epileptic attacks or have shown any indication of mental instability. In women there is the further personal danger of an attack of insanity after a confinement. It is sometimes confidently hoped that marriage will cure or at least greatly benefit hysteria in a woman. In mild cases it may possibly do so, but in severe ones the inevitable trials and worries attendant upon even the happiest married life are only too apt to aggravate hysteria. Moreover, any children born of the marriage will probably have highly neurotic tendencies, which will assuredly be developed and increased by the bad home training and example of their hysterical mother.

A hereditary proclivity to tubercle, even when very pronounced, need not be regarded as a bar to marriage, provided the individual himself is sound, but it certainly should be if there is the slightest suspicion that he has an unhealed tuberculous lesion.

Individuals with any definite morbid heredity should be careful not to marry into a family with similar tendencies. This raises the oft-debated question of the marriage of first cousins. The probability would appear to be that when the

family concerned is a strong and vigorous one, with no special morbid imminences, there is no reason why the children of such a marriage should not be perfectly healthy. If, however, there is even a slight hereditary tendency to disease, and especially to disease of the nervous system, it is likely to be much intensified in the children, and consequently as a rule such marriages are probably better avoided.

Nevertheless, whilst we should certainly discourage those who contemplate matrimony from incurring obvious risks, especially in regard to their future children, yet our knowledge of the laws of inheritance is not sufficiently precise to justify us in laying down very definite or arbitrary rules as to marriage and parentage. The old saying remains true that genius and insanity are often near akin (genius, of course, being sharply differentiated from mere ability), and if nobody with very neurotic or tuberculous tendencies were allowed to beget children mankind might in the long run be much the loser. After all, we are something more than mere beasts that perish, to be mated just as animals are mated in order to produce a prize bull, a race horse, or a pedigree dog. The world would soon become a very uninteresting place if it were inhabited solely by a race of physically fine mediocrities.

CHAPTER III

SPECIAL RISKS OF DIFFERENT PERIODS OF LIFE

I. **T**HE RISKS OF EARLY ADULT LIFE.—*The venereal diseases.*—It is shortly after the period of puberty that the venereal diseases, syphilis and gonorrhœa, are usually contracted, and they are undoubtedly a most important, perhaps *the* most important, factor in shortening life. It is quite impossible to give even an approximate idea as to the number of deaths for which they are responsible. For obvious reasons they figure but little in the records of mortality, and this must necessarily be the case so long as certificates of death have to be handed to the relatives of the deceased, instead of being, as they should be, confidential documents sent direct to a Government official bound to secrecy. Moreover, these diseases play a part, often a predominant part, in the causation of so many and varied morbid conditions, and such a number of years may elapse before these conditions become manifest, that their real cause may easily be overlooked. In addition the ills

to which syphilis, in particular, gives rise are far from ending with the patient himself. For at least several months in the earlier stage he is often highly infectious, and numerous instances are on record of many innocent people being infected by one person. Also, unless the disease is thoroughly well treated, there is the probability for some years that the patient will transmit it to any children he may have.

Unfortunately, however, the venereal diseases are for the most part contracted at an age when the desire to live long has hardly come within the sphere of consciousness. The young merely want to enjoy life, the experience of their elders, acquired often at bitter cost, is unfortunately not transmissible, and old age and death seem to them such remote events as hardly to be worth consideration. It is, therefore, useless to dwell here on the far-reaching effects of these diseases upon health and life, but it may be well to emphasize the extreme importance of prompt, prolonged, and thorough treatment should they unfortunately be contracted. The mortality returns in connection with Life Insurance Offices show that the actual number of deaths among men who have had syphilis, and especially among those who have not been satisfactorily treated for it, is for many years after, much greater than the number of expected deaths (according to actuarial calculation), sometimes

in fact more than double the number. Whilst, however, proper treatment can undoubtedly do much to avert the more serious consequences of venereal diseases, yet prevention is obviously infinitely better than cure, and the only really satisfactory remedy is sexual purity, which if universal would abolish them in a generation. The common objection is that all history and experience prove such an ideal to be impossible of attainment in actual practice. Certainly the sexual passion is a very strong one. It is right and necessary that it should be, for upon it depends the maintenance of the race, that desire for the life of others which is the highest form of altruism. Also the very real personal sacrifices involved in the bringing up of children form the best antidote to that selfishness which is inherent more or less in us all, and which constitutes one of our greatest temptations. Yet what progress would the world ever make unless we cultivated and aimed at ideals which may seem wellnigh unattainable? Chastity has been and is possible for many men, why not, therefore, for all? It is sometimes stated, probably by those who seek to find an excuse for the evil of their own lives, that if the sexual organs are not used they may atrophy, and consequently that continence may lead to sterility, and specious generalizations are advanced about the loss of function of disused

organs. A vast and unquestionable mass of experience conclusively proves that this statement is a lie, and that men who do not marry until it may be even middle life, and who have led absolutely pure lives, are fully capable of begetting perfectly healthy children.

It is difficult to see why women should not demand from their future husbands the same standard of purity which men without question expect from their future wives. Let it be granted that it is more difficult for the average man to remain pure than for the average woman, all the more reason why men should learn first of all to control themselves and their animal instincts, and so justify their much vaunted claim to be superior to women in power of government. In the meantime we should certainly strive to attain at least such a modified standard of morality that it may be regarded as a crime and a dishonour for a man who has had any venereal disease to marry a pure woman, so long as there is any reasonable probability that he may convey disease either to her or to their children.

It is right that men should be fully aware of the dangers to which they expose themselves by unchastity, but it is essential also to recognize that the mere fear of acquiring disease is not and is never likely to be by itself a sufficient deterrent in the majority of cases. Men are

always prepared to run risks in the gratification of their passions. To some natures, risk will be, as in other departments of life, even an additional inducement to do evil. An appeal to higher instincts is essential : the cultivation of the ideal that men should always treat women as they would wish their sisters to be treated by other men ; and above all, the training from earliest days of character and of the powers of self-control. Many will doubtless maintain that such training is only likely to be widely and permanently successful if based upon religious motive and religious influence. Sexual purity must of course be greatly helped by comparatively early marriage, and in this respect the manual workers of our country have a great advantage over the brain workers, in that the former commonly attain a maximum or almost a maximum wage many years before the latter.

The question of early marriage raises in a very acute form what is at the present time a national problem of rapidly growing importance, that of restriction of families and its effect upon the health of married women. There is much to be said in favour of such restriction to a reasonable extent and under certain circumstances. It is far better that men should marry and take measures to avoid having many, or even for a time any, children, rather than lead impure lives, with all the risks, physical and moral, attendant there-

upon. It is better that parents should have a few children and rear them under wholesome and favourable conditions, rather than a larger number brought up under such circumstances that some probably die and the survivors grow up unhealthy and badly developed. Obviously it is much more difficult successfully to rear a large family in a town than in the country, and an ever increasing proportion of our population lives in large cities. It may be wiser also for a husband and wife who have to reside in a very unhealthy climate to avoid having children. A wife has no right to be regarded and treated as a mere machine for producing a child every twelve or eighteen months during the whole of her reproductive life, merely to gratify the lusts of a selfish or indifferent husband, and at the sacrifice perhaps of her own health.

There is, however, another side to the question : we must remember that the desire for children is probably the most intense and lasting passion of the average healthy woman, and the desire if not gratified is very likely to be diverted into abnormal channels and to bring forth a rich heritage of trouble, especially of functional nervous disease, which even if it does not necessarily shorten life yet deprives it of all its pleasure. When wives deliberately try to avoid having children simply to escape the troubles and inconveniences of child-bearing

and child-rearing and the necessary interference with their amusements, they are contravening the laws of nature, and though the penalty for the infraction may be delayed, it is ultimately levied inexorably. They may enjoy their pleasures and their social engagements for a season, but the shadow of neurotic disease, with all its innumerable and far-reaching ramifications, dogs their footsteps, and the haunting, ever-nearing prospect of a self-centred, childless, friendless, solitary old age darkens all their future. Few people probably, outside the ranks of the medical profession, have any idea of the number of women's lives which are wrecked physically and mentally by the want of children. "Rachel said to Jacob, Give me children, or else I die," and Rachel was the forerunner of many a childless wife.

Alcohol.—It is in early adult life that the habit of taking alcohol is usually first acquired. Children do not want it, and no intelligent or responsible person would think of giving it to them except under medical orders during illness. Total abstinence during early manhood and womanhood is, however, undoubtedly a most valuable safeguard against many of the greatest dangers of this period. In particular venereal disease is often contracted as a result of indulgence in alcohol, with its resultant loss of self-control, allowing the animal passions to get

the upper hand. Moreover, as alcohol has been proved to interfere with the attainment of the highest degree of mental and of physical efficiency, it is surely most unwise to take it, at any rate habitually, during the period of life when habits are being formed, when the character is being moulded, the future destiny determined, and when mind and body alike need to be kept at their best if the fullest use is to be made of life.

Exercise.—Abundant physical exercise is essential at this time if health is to be maintained and the sowing of the seeds of future disease averted. The better health which young men formerly enjoyed as compared with women of the same age was no doubt due to the insufficient opportunities of exercise afforded to the latter. Fortunately this has now been remedied, and, as in so many other spheres of life, women enjoy equal privileges with men. Of course anything, however good in itself, may be carried to excess, and at the present day this may be true even of such an eminently desirable thing as physical exercise. Nevertheless, in early life the elasticity of the tissues is such, and the reserves of the various organs, especially of the heart, are so great, that no harm is likely to result even from very strenuous exercise, provided that the strength is not habitually overtaxed, and that men keep in fair training, and do not attempt very violent and

unaccustomed exertion when flabby and out of condition, especially from alcoholic excess or excessive smoking. Of course, in this as in other matters men and women must learn to realize their own limitations, particularly in regard to severe competitive exercises for which a prolonged and careful training is required.

Clothing.—A few remarks, applicable really to all age periods, may be made here on this subject. The importance should be realized of distributing the clothing fairly evenly over the body, so that all parts are properly protected. In those with any rheumatic tendency or predisposition it is essential that the underclothing should extend from the collar bones to the ankles and down the arms nearly to or even below the elbows. The question as to what is the best material to be worn next the skin, both by children and adults, is at present a much debated one. Formerly woollen garments were almost universally recommended, and they certainly protect the skin from changes of temperature and are perhaps especially suitable for rheumatic subjects. On the other hand, they prevent the escape of perspiration, and the recognition of this fact, together with much judicious advertisement, has led during recent years to the increasing popularity of woven linen garments, which allow free evaporation of sweat and so keep the skin dry. They are particularly suitable during hot

weather and for those who perspire freely. Wool or flannel is undoubtedly a more efficient protection against sudden changes of temperature and cold winds, but is perhaps more desirable as an outer garment than next the skin. After all, the really essential thing is that the body should be adequately covered and that clothes which are damp or sodden with perspiration should be changed as soon as possible. This especially applies to boots and shoes; the same pair should be worn only on alternate days, so that time may be afforded for them to get thoroughly dry. It would be merely a waste of time to discuss in detail the clothing of women, for it is, and probably always will be, dictated to such a large extent by fashion rather than by considerations of health, hygiene, or even of comfort. Moreover, fashions change so rapidly and erratically that if one were to criticize those of the present day, such as high heels, tight lacing, or low dresses, in a few months the pendulum might have swung in the exactly opposite direction, and such criticisms seem to refer to an almost antediluvian period.

Baths.—It is during adolescence that the morning cold bath, a custom of almost national importance in this country, is usually started. It can hardly be said to be essential for health, seeing the number of people who manage to get along quite well and even live to an advanced

age without it. Nevertheless, unless there are medical reasons for forbidding it, it is undoubtedly a useful tonic to the nervous system, and by accustoming the skin to sudden changes of temperature it is to some extent a safeguard against taking cold. At the same time, except in the case of particularly robust individuals, it is unnecessary, possibly even undesirable, that the water should be absolutely cold throughout the winter. A good rule during the cold weather is to add sufficient warm water to bring the temperature of the bath up to that of ordinary tap water during the summer, say to 65° or 70° . We hear of men who have a dip in the Serpentine every morning throughout the year, even if they have to break the ice to get it. After a time this probably becomes largely a matter of living up to a reputation, and this may be a very good or a very disastrous thing to have to do. If the reputation is a good and desirable one, to have to live up to it is a great help and protection, but unfortunately many a man is impelled to live up to a reputation for all kinds of undesirable things, and this may render it very difficult for him to make a new and better start. It is difficult to see how a man by plunging morning after morning into ice-cold water can gain anything except reputation, together with that self-satisfaction and sense of superiority to his fellows so dear to all of us, which comes from

doing something which other people either cannot or will not accomplish. Sea-bathing should be practised as circumstances permit. The saltiness of the water and the incessant movement of the waves add to the tonic effect of the bath. It is more enjoyable, more health-giving, and safer if the bather can swim, an art not difficult to acquire, especially in early life, and once learned never forgotten.

The Bowels.—It is most important, as early in life as possible, to establish regularity in the action of the bowels and to try to secure an evacuation every day at about the same hour. The difficulty of doing so is much greater for some people than for others, and not uncommonly a tendency to constipation is very distinctly hereditary. With care and perseverance, however, the habit can usually be acquired, and is then likely to be maintained throughout life. Modern conditions of life in towns undoubtedly favour constipation, and it cannot be too widely known that a definite desire for an action of the bowels should, as far as possible, not be ignored or long postponed. If unheeded it may soon pass away and perhaps not recur for the rest of the day. In this, as in all other departments of life, it is only too easy to drift into evil habits, and neglect of nature's calls, if often repeated, will soon lay the foundations of a lifelong tendency to constipation.

Regularity in this matter is an enormous gain to the health and comfort of the individual and undoubtedly helps materially in the prolongation of life. The obtrusive and omnipresent advertisements and the immense sale of all kinds of aperient medicines are a sufficient testimony to the widespread character of the malady which they temporarily relieve, cannot cure, and often ultimately increase and perpetuate. Everyone ought to aim at having a regular daily action of the bowels and to regard failure to attain it as a matter calling for immediate attention. Doubtless there are a few individuals who get along comfortably with an action every other day, but they should be considered as distinctly the exception and not the rule. Chronic constipation is responsible for much ill-health, from such comparatively slight ailments as indigestion, headaches, general malaise, and more or less anæmia, to gout, kidney mischief, premature degenerative changes in the heart and arteries, and organic diseases in the stomach and intestines. If allowed to continue, it may give rise to changes in connexion with the bowel which render its cure almost if not quite impossible.

II. THE RISKS OF MIDDLE LIFE.—It is not as a rule until men reach the turning-point of life, and first become uncomfortably conscious from sundry signs and symptoms that they are

“not so young as they were,” that they begin to trouble about their prospects of longevity. In early manhood the future seems so long and the store of vitality so vast that the possibility of illness and death is not even thought of, but when signs of failing health first show themselves the sufferers at once become anxious to live as long as possible, and are willing to take precautions accordingly. “All that a man hath will he give for his life.” Fortunate is the man who rules well his early days, and who takes heed to his physical well-being in good time, who does not sow wild oats, which he will assuredly reap hereafter, and does not seek, as do so many, to amend his ways when health has already been irretrievably damaged and the prospects of long life notably diminished. It is well to remember that health is largely attained by self-denial.

The commonest dangers of middle age are either the sacrifice of health in the competition for power and influence or in the race for money, or else, at a somewhat later period, the craving for luxury and the desire to enjoy the fruits of accumulated wealth. It is a poor bargain to attain success at the sacrifice of health, and only too often the health is lost without success being reached. When a man gets so busy that he cannot spare sufficient time for exercise, recreation, and sleep, it is time for him to revise completely his mode of life. The giving up of

adequate exercise is perhaps the greatest and most insidious danger of all in these days of ever-increasing facilities of transit. As a man gets older he certainly needs less violent and less strenuous exercise, but if he is to keep well he must still have a good deal, though walking may replace running, golf be substituted for football, and the ascent of easy mountains or passes for the climbing of virgin peaks or the discovery of new and more impracticable ways up familiar ones. It is unwise and may be distinctly dangerous to try to atone for a long-standing insufficiency of exercise by sudden, spasmodic, and ill-regulated attempts at more or less violent physical exertion. A sedentary life, especially if there is a tendency to obesity, causes the heart to become flabby, and under such circumstances any severe and prolonged physical strain may give rise to a cardiac dilatation which may easily become permanent and necessitate a life of chronic invalidism. The young are practically always in good training, but the middle-aged man who has for a long time been leading a quiet life needs careful preparation before he can safely undertake any unwonted physical strain. In the American Civil War it was notorious how numerous were the cases of cardiac break-down amongst men who came from sedentary occupations and abruptly undertook an arduous military life involving prolonged

marching and the carrying of heavy weights. In civil life also such cases are by no means uncommon, although of course they attract less notice.

For a healthy middle-aged man the morning cold bath continues to be a useful tonic, provided it is followed by a satisfactory reaction and a general sensation of well-being. If it makes a man feel chilly and depressed it is doing him harm rather than good, and he should either have the water rather warmer or abandon the bath altogether. A Turkish bath once a week or so may be helpful in enabling those who lead sedentary lives in cities to get rid of their waste products, although it must not be regarded as an adequate substitute for exercise in the open air.

When the growth and development of the body have finally ceased and opportunities for exercise become fewer, it is increasingly necessary to keep a tight rein over the appetite, for an amount of food which is essential during adolescence may be highly injurious a few years later; yet men are very apt to think that they ought to continue to take the same quantity as they have become accustomed to eating in earlier years. In particular it is necessary to reduce the amount of animal food, for this consists mainly of those proteid or nitrogenous elements which go to the building up of the tissues, and which should, therefore, be taken in much smaller quantity

when they are needed merely to make good wear and tear, and not for the further growth and development of the body. The waste products of a habitual excess of animal food throw an increased strain upon the excretory functions of the kidneys, and in middle and later life are very prone to give rise to a chronic and incurable form of Bright's disease. The very common combination of too much food with too little exercise may lead to general malaise, headaches, indigestion, gouty or so-called rheumatic symptoms, and so on ; but the most frequent and reliable indication that all is not going well is a gradual increase of weight. Obesity is a source both of inconvenience and of actual danger ; of inconvenience because it makes a man increasingly a burden to himself, and by further limiting his physical activities sets up a vicious circle—the accumulation of fat restricting movement, whilst the limitation of movement in turn adds to the obesity ; a source of danger, because stout people are notoriously bad lives and rarely live to old age ; they readily succumb to acute illnesses, and as the additional fat is deposited upon the heart as well as upon other parts of the body, that organ is in time seriously weakened and hampered in its action. Hence the increasing shortness of breath from which fat people suffer. Various special methods of treatment for obesity are in vogue at spas and

elsewhere, but the essential factors are always a diminution in the total quantity of food eaten and an increased amount of exercise so soon as the patient is able to take it. For further discussion of these points see subsequent chapters on Food and Exercise.

The wear and tear of modern life frequently tend to give rise to nervous break-down, especially if the mental strain is not counterbalanced by sufficient physical exercise. One of the first and most important warnings of such a break-down is sleeplessness. No matter how hard-worked and even worried a man may be, so long as he can sleep well no serious harm is likely to accrue, but if his sleep begins to fail nerve trouble is imminent, unless the strain can be relieved, preferably by a complete change of scene and occupation. A timely short holiday may save months of invalidism. People differ in the amount of sleep they require to keep in good health, just as they do in other respects, and each man must ascertain for himself how much he needs. Some want about eight hours every night, others find six hours sufficient. Probably sleep varies in quality, and this may in part at least explain the need for variations in quantity. Some fortunate individuals possess the power of falling asleep at will for short periods when opportunity offers, and consequently it is not so essential for them as

for others to have long and undisturbed nights.

Just as it is advisable for a man to visit his dentist twice a year or so in order that the earliest signs of decay in his teeth may be checked, so when he is approaching middle life it may be wise for him to be thoroughly overhauled every few years by his medical man, so that any tendency to disease or to incipient degeneration may be promptly detected, and perhaps checked altogether or postponed for a long time. In this way he may receive advice as to diet, the quantity and kind of exercise he should take, how he can best spend his holidays, the advisability of continuing a morning cold bath or of indulging in sea-bathing, all of which may greatly contribute to his health and longevity. This is surely much better than the all too common practice of waiting until mischief is far advanced before taking advice about it.

III. THE RISKS OF OLD AGE.—In not a few respects the second childhood resembles the first, and among other points of likeness is the need, at both extremes of life, for the love and care of others ; old people, like young children, are unwilling or unable properly to look after themselves. As age advances and all the processes both of body and mind become slower, the activities of life, whether in business or

pleasure, must be correspondingly diminished, and worry especially must as far as possible be avoided. Holidays should be taken within shorter distances, hill climbing given up and high altitudes avoided; in particular, rapid ascents in mountain railways ought to be regarded as distinctly dangerous, as the sudden variations of atmospheric pressure may be too great for the enfeebled and degenerate heart and arteries. Presently the time comes when the old man had better remain at home, then in his house, later on in one room, finally even in his bed.

As in infancy, the night's rest is insufficient to maintain the ebbing strength, and short naps during the day become increasingly necessary, particularly after any little extra fatigue or excitement.

The quantity of food must be diminished proportionately to the waning powers of mastication and digestion. It is often surprising how little food is required by old people leading very quiet indoor lives and free from all strain and stress, either mental or physical. The food whilst small in quantity must be well cooked, digestible, and appetising. A little alcohol with meals may stimulate appetite and digestion, but must be given very cautiously or it may hasten degenerative processes. Moreover, it is especially easy for old people to become victims to alcoholism, and it is the crowning tragedy of

old age if a craving for drink is added to its other infirmities. It must be remembered that, at a time when the disillusionments of life are complete and self-control is rapidly weakening, alcohol may recall for a brief period the passions and desires of youth, only to leave its victims a prey to reaction, and with less power than before to resist the craving for more of that elixir which for a fleeting moment seemed to lighten or destroy some of the burdens of advancing age. How true is the description in *The Golden Legend* of the effects of alcohol :

It is like a draught of fire !
Through every vein
I feel again
The fever of youth, the soft desire ;
A rapture that is almost pain
Throbs in my heart and fills my brain !

.

Alas ! alas !

Like a vapour the golden vision
Shall fade and pass,
And thou wilt find in thy heart again
Only the blight of pain,
And bitter, bitter, bitter contrition !

Warmth is one of the greatest essentials of old people, as they have not sufficient vitality to react to cold in any form. So long as they are able to go away at all, it may be preferable for them to spend the winter in some warm, sheltered district, remaining quietly at home during the

summer. If unable to winter away, they should live in well-warmed rooms, and be careful to avoid going from a hot sitting-room to a chilly bedroom ; unheated lavatories are also often dangerous. As far as possible they should go out only in sunny weather, and should be especially careful to avoid exposure to cold east and north-east winds. Cold baths had better be given up in later middle life, or at any rate should only be continued with medical sanction.

Constipation is one of the greatest troubles and dangers of old age. Everything conspires to favour it—the quantity of food taken diminishes, and consequently there is less residue to stimulate the bowel ; all the bodily functions are performed more sluggishly ; the abdominal muscles, which materially help in the action of the bowels, become weaker ; the stimulus to intestinal activity given by muscular exercise becomes less and less. The result is that old people often need to take some laxative regularly, for it is far safer for the bowels to be slightly on the loose side than to be habitually costive. Constipation in the aged leads to many troubles : the indigestion and flatulence to which it gives rise disturb sleep and embarrass the action of the heart and lungs, which are probably already barely equal to the work demanded of them ; in fact, severe flatulence may entail a real danger of sudden death, through the pressure it exercises

upon the enfeebled heart. Constipation also leads to the absorption into the blood of various poisons from the bowel, and these poisons have to be excreted by the kidneys, which perhaps are already working up to the limit of their powers ; indirectly also an increased strain is thrown upon the heart and arteries, and this, coupled with the straining at stool which constipation causes, not infrequently determines an attack of apoplexy. It must be remembered that towards the end of life there is little or no reserve left in the different organs of the body, and that a very slight disturbance or extra strain may consequently lead to serious or even fatal consequences. Sometimes in feeble old people prolonged constipation eventuates in a definite attack of obstruction of the bowels. Enough has been said to indicate that whilst regular action of the bowels is most important for health and happiness at all ages, in later years it becomes of actual and immediate importance for life itself. Note too that old people need to be watched in this matter, as they are to a large extent in this as in so many other details of life unable entirely to look after themselves.

In old age there is one very marked contrast with the first childhood, viz., that the powers of reaction of the body steadily diminish. Even a slight rise of temperature is usually extremely significant in an old man. It may, for instance,

be the chief indication of the onset of an attack of acute pneumonia, which may prove fatal in a day or two, although the patient has no pain, and often no definite symptoms of any kind save increasing weakness and apathy. In a child a far higher fever may be due only to some quite trivial disturbance. Therefore in advanced life what may seem comparatively unimportant symptoms should be carefully noted, for death may come almost unobserved, and sometimes quite unexpectedly.

The joys and the sorrows of life are alike less keenly realized ; it is notorious that old people often seem to feel but little the loss of their nearest and dearest relations. Fortunately, the fear of death for themselves is mercifully lessened or lost ; in fact, as the limitations and infirmities of age become increasingly marked, death may even be longed for as the natural relief to the tired feeling which is so constantly complained of, to the increasing burdens of a decrepit body, and to the narrowing interests of an infirm mind.

CHAPTER IV

FOOD, DIGESTION AND INDIGESTION

FOOD is of course essential for existence, and it is a fortunate thing, therefore, that in healthy people eating is also one of the greatest pleasures of life. When the Hebrew poets wished to picture men in the last extremity of misery and despair they wrote, "Their soul abhorreth all manner of meat," and again, "His life abhorreth bread, and his soul dainty meat." Unfortunately, this natural fondness for food leads to dangers of its own, and calls for the exercise of much self-control.

Food is necessary for the building up and the renewal of the tissues of the body, and for the production of heat and muscular work. The varieties of food are—proteins, sugars and starches, fats, salts, and water. The proteins alone contain nitrogen, which is an essential constituent of the tissues of the body; they are consequently the only foods which are tissue formers, and hence a certain amount of protein is necessary for the maintenance

of life ; as they are also capable of producing heat and work, it follows that proteins alone can sustain life, but in order to produce sufficient heat and work a very excessive, wasteful, and injurious consumption would be necessary, so that under all ordinary circumstances fats and sugars or starches (carbohydrates) are eaten as well. Fats are especially useful in maintaining the heat of the body, whereas the sugars and starches are used up mainly in the production of muscular work. Fats are a much more expensive and a far more concentrated food than starches, consequently the latter always predominate in the diet of the poorer classes. The most important of the protein foods are meat, fish, the casein of milk and cheese, the white of eggs, the gluten in bread, flour, and oatmeal, and the pulses (lentils, peas, and beans).

In the average healthy adult, who is not restricted by poverty, the question of the quantity of food taken and its composition may as a rule best be left to the individual, guided by instinct, by national custom, and by personal experience ; for the kind of food commonly taken by the whole community will generally agree with the individual members of that community, unless personal experience prove the contrary. Many people have special idiosyncrasies in regard to particular articles of diet, and these must be respected. They are not very uncommon even

in children. Amongst the poorer classes there is always a tendency towards an excess of the starchy foods in the diet, whilst amongst the middle and upper classes, especially perhaps in this country, the tendency is as a rule to take too much protein food, and certainly too much meat. Against this tendency *vegetarianism* is perhaps to be regarded as a kind of unconscious protest, and the advantages of such a dietary are often so loudly extolled that it may be well to consider briefly whether it is likely in any way to contribute to longevity. First of all, we may note that the question is one entirely of the protein foods; sugars and starches necessarily come from vegetable sources, and the fats are equally digestible whether derived from the vegetable or the animal kingdom. The chief sources of vegetable proteins are flour, oatmeal, lentils, dried peas, and beans; in addition milk and eggs are eaten, except by the strictest sect of vegetarians, and yield of course further important supplies of nitrogenous food. It may be stated generally that the vegetable and animal proteins are of almost the same nutritive value, and are equally useful in the building up and repair of the tissues of the body. Probably the greatest practical advantage of a vegetarian diet is that it is unquestionably and inevitably cheaper than one derived largely from animal sources; in fact, it has been estimated that for any given

sum, four times as much vegetable as animal proteid may be obtained. As has been very clearly pointed out by Dr. Hutchison in his work on *Food and the Principles of Dietetics*, the animal has to form its protein from vegetable sources, and in doing so acts as a highly paid middleman and takes a heavy toll from the community; for plants build up their tissues direct from the air and the soil, whereas animals need more complex products, and more waste is involved in the formation of their tissues. One writer states that "every acre well cultivated would feed seven times as many men by its crops as could be fed on the flesh of the cattle who do but graze on its spontaneous grasses"; and it has been calculated that $2\frac{1}{2}$ acres devoted to the production of mutton will support one man a year, whilst the wheat grown on the same area would support sixteen men. On the other hand, it must be remembered that the cooking of vegetables takes longer and consequently costs more than that of animal food.

Another favourite argument in favour of vegetarianism is that meats, to a less extent fish, and most of all preparations made from meat, such as meat extracts, gravies, soups, etc., contain certain products known as "extractives," among which are included especially the so-called "purin bodies," which have no actual value whatever as foods, although they are important

flavouring agents and have a certain stimulant effect, especially upon appetite and digestion. It is said that these substances increase the strain upon the excretory organs of the body and tend to give rise to gout, chronic rheumatism, kidney trouble, and other diseases or conditions of general ill-health, due particularly to imperfect elimination of waste products from the organism. It is probable, however, that the importance of the "purin bodies" in this respect has been much exaggerated, especially by venders of various patent medicines. Without doubt it is quite possible for anyone to take a diet containing a harmful excess of these bodies (is there any kind of food of which some people do not habitually take too much?), there are also some approximately healthy folk upon whom they may have a specially injurious effect, and there are various conditions of disease in which their consumption should undoubtedly be much restricted. It by no means follows, however, that the habitual moderate use of meat and other foods containing these substances is in any way harmful to the great majority of healthy, normally constituted individuals, perhaps quite the contrary. We must beware of the tendency in these altruistic days to bring down our regular dietary to the level of the "weak brethren"—of the dyspeptic, the gouty, the neurasthenic, the cranks and the faddists. A great drawback to a dietary which is

mainly or exclusively of vegetable origin is the fact that it is much more bulky, much more watery, and imposes a far greater strain upon the digestive organs, and so indirectly upon the nervous system, than does animal food. An agricultural labourer or other outdoor worker may get along quite well on such a diet; the effect of the open-air life is to maintain his appetite and powers of digestion and assimilation at their maximum, whilst his occupation does not involve any particular strain upon his nervous energies in other directions. The economic side of the vegetable dietary is also likely to be highly important in his case. The sedentary indoor worker, and especially the brain worker, is, however, not so well able as a rule successfully and comfortably to digest such a diet; he needs his blood for his brain rather than for his stomach; he must get his protein in the form of concentrated, appetizing, stimulating, digestible meat rather than in the form of bulky vegetables containing a large proportion of absolutely indigestible cellulose. Furthermore, meat is valuable as an energizer of the nervous system for individuals who are liable to sudden calls upon either their mental or their physical activities. The nervous system requires nitrogen in an easily available form to enable the muscles to make the best, the quickest, and the most complete use of the carbohydrates which they convert

into energy. Vegetarianism may be very suitable for a placid inhabitant of the tropics whose daily needs and activities are reduced to a minimum ; it is not so likely to enable a man who is called upon to lead a strenuous life in a cold climate to put forth his best and utmost endeavours, or to keep his vitality and resistive powers at the highest possible level.

On the whole, therefore, there is no reason to think that the common practice of mankind in cold and temperate climates of taking a fair proportion of animal food is not a wise one. Nevertheless, for very many people in this country there is a far greater danger of eating too much meat rather than too little, and for this reason we may value the practical demonstration which vegetarianism affords that meat is by no means essential either for life or for health. As a matter of fact, like perhaps most other dietetic fads and fashions, it owes whatever measure of popularity it enjoys mainly to two reasons. The first is that, as already suggested, it is doubtless really an unconscious protest or reaction against the excessive meat-eating habits of the present day, and all experience shows that such reactions always tend to be carried to excess ; possibly they would not attract enough attention to keep them alive unless some such element of excess or even of fanaticism entered into them. The second reason is that there are no doubt

some individuals who, by reason either of constitution or of occupation, are certainly better in health if they take little or no meat. If they would recognize that what is best for them is not necessarily best also for the great majority of their fellow-creatures, all would be well, but this is too much to expect from human nature. A man, and still more a woman, nearly always thinks that what suits him or her best, whether in religion, food, drink, climate, clothing, or anything else, must necessarily be the best for his fellows; in fact, this innate conviction has profoundly influenced, and doubtless always will influence, the whole history of mankind. A man does not like to be singular, and if, either from preference or perhaps under medical advice, he gives up eating meat, he at once begins to imitate the fox in the old fable who had had the misfortune to lose his tail, and tries to persuade his fellow-men how much they will benefit by following his example. There are always many tailless foxes in the world, and they are ardent and sincere propagandists.

The people who would especially benefit, not perhaps by giving up meat altogether but by largely reducing their daily allowance, are those who have reached or passed middle life, particularly if they have any tendency—often inherited—to gout, so-called chronic rheumatism, or kidney disease. Another class for whom a

largely vegetable diet is useful are those, with excellent appetites and digestions, who have got into the habit of eating large meals and are by no means happy unless their stomachs are well filled at each repast. A bulky vegetable meal gives them the feeling of satiety for which they crave, without imposing that subsequent strain upon their powers of assimilation and that tendency to accumulation of waste products which an equally large meat meal would undoubtedly involve.

Harm may of course be done to health both by under-feeding and by over-feeding, but the former is usually due to poverty or to other causes which cannot be dealt with here, causes which often lie outside the control of the individual, whilst over-eating is essentially a matter of personal responsibility. In all probability the great majority of those who may read these lines are in far greater danger of eating too much than too little. Throughout childhood and early adult life the risks of over-eating are but small; for during the period of growth the quantity of food needed is undoubtedly large, altogether out of proportion to the actual increase in weight, and at the same time a great deal of active, possibly even violent, exercise is being taken. Any special surfeit is likely to be promptly followed by an acute attack of stomach disturbance which brings its own cure. In middle

life, and still more when the descent has commenced, the case is very different. The bodily tissues merely require renewal, not addition, and waste is much less than in former years owing to the steady diminution as a rule in the amount of active exercise taken. Nevertheless, a man often thinks it is incumbent upon him to eat almost if not quite as much as when he was an active youngster, and in this he is generally encouraged by the ever-watchful care of an over-anxious wife, who measures her husband's health by the quantity of food he consumes and estimates his strength by his weight. How rare it is to meet with a wife who is prepared to admit that her husband has a really good appetite! Doubtless the increasing perfection of artificial teeth contributes to the same result: the old saying is often true that "a man digs his grave with his teeth." Over-eating may come about in another way: a man from early manhood onwards has worked hard and lived abstemiously; he has risen early, has walked whenever possible rather than ride, has had frugal meals, taken very little alcohol, and been content with smoking one pipe every evening. Now, as middle life approaches, he begins to reap the just reward of his labours, and in place of the discipline of comparative poverty has to encounter the insidious perils of wealth. He decides, or if he does not his wife and his daughters

do for him, that the time has come when it is his duty to begin to enjoy life. He buys a motor-car, never walks when he can ride, partakes of large and luxurious meals, accompanied by copious libations of champagne and followed by port wine and cigars, spends long week-ends at fashionable hotels and longer holidays on sumptuous steamers, and for a little time almost persuades himself, poor deluded man, that he is having a really enjoyable life. He is not actually such an up-to-date character as he probably imagines; his portrait was sketched centuries ago in the words which portray the man who under similar circumstances said to himself, "Thou hast much goods laid up for many years; take thine ease, eat, drink, and be merry." Disillusionment soon comes — increasing obesity with all its burdens, shortness of breath on comparatively slight exertion, uncomfortable and disquieting sensations about the heart, threatenings of an almost forgotten ancestral gout, sciatica, eczema, biliousness, depression of spirits; ills of all sorts begin to press upon him, and he realizes that without health there can be no enjoyment or happiness. Unfortunately, when he feels tired and depressed it only too often happens that he and his relations imagine that his strength and spirits require to be kept up by yet more rich food and stimulants, for they rarely realize that these feelings are really indica-

tions for giving less food and for cleaning out the drains, and that "a man will roll faster down the hill of life if his figure be rotund." Unless he learns wisdom, worse things follow—crippling deformities in the joints, serious changes in the liver, grave organic mischief in the heart, the arteries, and the kidneys, eventuating in angina pectoris, in apoplexy, or in Bright's disease, leave him a hopeless wreck, and he spends his last years a miserable cripple, taking exercise in a bath-chair, whilst he sees others consuming the appetizing delicacies, the wines, and the cigars of which he is unable or forbidden to partake. It is unfortunate that in adult life the penalty for over-eating is as a rule not exacted so promptly as it is in childhood; it accumulates at compound interest, and has to be paid mercilessly sooner or later.

Adults who lead a comparatively sedentary life certainly do not need three "square" meals a day, and probably we might with advantage imitate the Continental custom of making the breakfast (or, if preferred, one of the later meals) quite a light repast. Many people who habitually over-eat make a practice of visiting annually some fashionable spa, where they drink aperient waters, and consequently have their alimentary canals thoroughly cleansed, whilst at the same time they get plenty of fresh air, with more exercise and generally a much more abstemious diet

than usual. Undoubtedly great benefit often results, though the gain is only temporary if the old bad habits are at once reverted to after returning home, and with each year the improvement is likely to be less marked and more transient. The practice recalls in many ways the occasional pilgrimages or special acts of sacrifice whereby our mediæval ancestors frequently sought to atone for past moral delinquencies, often that they might be set free to embark upon a fresh career of iniquity. It also serves to replace to a great extent the old custom of blood-letting, to which so many of our plethoric forefathers used regularly to resort once or even twice a year, and which was often doubtless effective in postponing or averting the danger of apoplexy. Nevertheless, this is pre-eminently a case in which prevention is better than cure, and as for a long time to come the prospect of a visit to many of the spas which used to be the most popular, *e.g.* Karlsbad, Marienbad, or Homburg, is likely to be less attractive than formerly, the present is a particularly suitable time for the frequenters of these resorts to consider whether by habitually ruling their appetites and regulating their lives more carefully, they may be able to do away altogether with the necessity for an annual "cure."

INDIGESTION.—A few words may be added here

in regard to this subject, which under modern conditions of life is only too often one of perennial interest to a large number of people. Even if it does not actually tend to shorten life, it certainly deprives it of much of its happiness. Nothing is enjoyed ; even sleep is robbed of its restfulness, for are not evil dreams often “ Children of night, of indigestion bred ” ? It leads to irritability, melancholia, and moral perversion, from the consequences of which those about the patient may suffer far more than the original victim. It may beget tyrants, and even change the course of history. Conversely, the words of old George Herbert are certainly true :

Take all that is given, whether wealth,
Or love, or language ; nothing comes amiss ;
A good digestion turneth all to health.

It must not be forgotten that indigestion may be an early and perhaps a very important symptom of definite organic disease, not merely of the stomach or bowels, but also of the heart, the lungs, the kidneys, or the blood ; in fact, it would be true to say that it is hardly possible for serious disease to occur in any part or organ of the body without giving rise to some disturbance of digestion. In particular, persistent indigestion, occurring in a middle-aged person who has not suffered from it before, calls for the fullest medical investigation. On the other hand, many

individuals are born with a weak digestion ; for in this, as in all other departments of life, there is no such thing as equality : our digestive powers—sometimes from earliest infancy—vary as much as our personal characteristics or our mental faculties. Some people must resign themselves to the fact that they will always have to be exceedingly careful in regard to their food, if they are to have any comfort in life, and must be content to submit to deprivations which their more vigorous brethren escape. Nevertheless, there are, even for these unfortunates, some important compensations, as indeed there always are in life. They avoid the dangers of over-feeding to which so many succumb, and it often happens that in consequence of the restraint they are compelled to put upon their appetites they escape many diseases and live longer lives than those who at one time seemed far stronger and more robust than themselves. As Swift truly said, “ Human beasts, like other beasts, find snares and poisons in the provisions of life, and are allured by their appetites to their destruction.” For those who suffer habitually from what is known as “ a poor digestion,” one caution is especially necessary. It seems to be an instinct of human nature to attribute all our ailments to something outside ourselves ; when, for instance, a patient is suffering from serious illness, he invariably regards any fresh symptom that arises as due, not to the

natural course or extension of his malady, but to some outside agency—the medicine he is having, some food he has taken, or some draught to which he has been exposed. It is just the same in cases of indigestion: each fresh attack is almost invariably attributed to an indiscretion in food or drink, with the result that the incriminated article is promptly excluded in future from the dietary. This process is often continued until a vicious circle is established; the more restricted and monotonous the dietary the less become the patient's powers of digesting the food which is still taken, consequently the attacks of indigestion become more frequent and severe, the food is further cut down, and so the process goes on until perhaps the unfortunate sufferer is reduced to a condition of semi-starvation. Such people must recognize that they have to aim, not at bringing down their diet to the level of an enfeebled and hyper-sensitive stomach, but at raising their digestive powers to the standard of a fairly ordinary diet, and that this has to be effected mainly by improving the general health; for if the vitality of the whole body is diminished it is not reasonable to expect the digestion to be good. Monotony is particularly to be avoided in the diet of dyspeptics: we cannot but sympathize with the children of Israel in the Wilderness, when, after a prolonged course of manna and manna only as a food, they recalled with ever-increasing cravings

the varied diet of Egypt, and cried out, "Who shall give us flesh to eat? There is nothing at all, beside this manna, before our eyes," and again at a later period, "Our soul loatheth this light bread."

A great deal of indigestion is undoubtedly due to bad habits and to faulty hygienic conditions of life or environment, as is well shown by the fact that many individuals who are habitual dyspeptics under their usual conditions of life are perfectly well when enjoying a rational holiday, despite very likely what they would ordinarily regard as serious dietetic indiscretions.

The habit of bolting food is responsible for much after discomfort. It has been well said that some people take their food as if they were posting their letters. The man who in the middle of each day rushes into a restaurant, stands at a counter and gobbles down a fairly substantial lunch in about five minutes, can hardly expect permanently to escape retribution. Nature would surely not have given each of us a set of thirty-two teeth had we not been intended to make good use of them, and probably one important factor in their all too frequent premature decay is that, owing to the too pappy character of much of our food, and the hurried way in which we often eat it, we do not use our teeth sufficiently. Decay and disease may result as readily from insufficient as from excessive use.

Another common factor in giving rise to dyspepsia is the practice, often seen in the hurry and worry of busy town life, of sitting down tired to a meal, or of starting strenuous mental or physical work directly after a heavy repast. Young people with vigorous digestions may do these things with impunity, but not so those who are predisposed to dyspepsia or those whose stock of nervous energy is strictly limited. There is a story of a celebrated physician who on one occasion, when consulted by a patient for digestive trouble, gave the sententious advice, "Dress for dinner"; the point being that the man came home from business tired and jaded, and immediately sat down to dinner: the preliminary "dressing" would give the interval required before starting the meal. For many people it is also essential that there should be a short period of rest after a meal before the resumption of work, the nervous system not being equal to the double strain involved in digesting a large meal and at the same time engaging in some arduous occupation, whether physical or mental.

Yet another important cause of indigestion is insufficient fresh air and exercise, but for this reference must be made to the chapter on these subjects. Suffice it to say here that the old injunction, "In the sweat of thy face shalt thou eat [bread," has a very literal interpretation, and no one can expect permanently to enjoy and

benefit by his food unless he takes a reasonable amount of physical exercise suited to his age and capacities.

SHOULD MILK BE BOILED?—This much disputed but very important question may conveniently be discussed here. It is, of course, a far more serious matter for young children than it is for adults, for milk constitutes almost the sole food of the former, whilst the latter usually take it only in small quantities. Moreover, children are much more susceptible than are adults to most of the diseases which may be conveyed by milk. Nevertheless, if the boiling of milk is really desirable for children, it surely follows that it is preferable, though less essential, for adults. Few people presumably would care to drink milk, even in small quantity, if they knew it were capable of conveying disease to children; and if a large portion of the household milk has to be regularly boiled, it is simpler and safer to boil the whole.

Let us examine first the arguments which are advanced against the boiling of milk. 1. That *the taste is less pleasant*. This is obviously a very small matter by comparison with risks to health, and after all the preference for milk of a particular flavour is only a question of use; children who have been brought up exclusively on boiled milk prefer its taste to that of the unboiled product.

2. That *it is less nutritious*. It is true that a small amount of nourishment is lost by the removal of the "scum" which forms on the top of boiled milk as it cools. The total loss, however, is so small as to be practically negligible.

3. That *boiling alters the character of the milk*, and in particular destroys that fresh element (the real nature of which is unknown) which is present in unboiled milk and prevents the development of scurvy in milk-fed infants. This objection applies mainly to babies living almost exclusively on milk. It is perfectly true that boiling does very markedly alter the character of milk in more ways than can be ascertained even by chemical analysis; there is always a profound difference between cooked and uncooked foods, a difference which is certainly not confined to milk. Yet we are in the habit of cooking nearly all our foods, except milk, and meat in particular, although raw meat or raw meat juice has much to recommend it for digestibility and nourishing qualities. Moreover, there is a great difference between milk which has only just been raised to the boil (and that is really all that is needed), and milk which has been cooked or subjected to prolonged boiling, as is sometimes done when it has to be bottled and kept for long periods in travelling by sea, etc. There is no doubt that young children who are fed entirely on such a milk for many weeks do

occasionally develop scurvy, but its use is rarely necessary, and usually quite undesirable. Moreover, there is no sufficient evidence that boiled milk is less digestible or appreciably less nutritious than unboiled milk. Extensive inquiries, experiments, and observations have been made during the last few years by Dr. Lane-Claypon on behalf of the Local Government Board in regard to this matter, and the conclusions arrived at are: "That there is no evidence to show that boiled cows' milk is markedly inferior to raw cows' milk, as a food for young calves, at any rate after the first two days of life," and further that "There is considerable divergence in the conclusions based on experience of different observers, as to the relative nutritive value of raw and boiled cows' milk as a food for infants. . . . The balance of evidence may be said not to show any decided superiority on the side of either raw or boiled cows' milk."

The great reason for advising the boiling of milk is that it is a perfect culture medium for the growth of a number of different disease-producing micro-organisms, which are very liable to get into it and multiply with extraordinary rapidity. In this country the most important microbes which may be thus conveyed by milk are those of tuberculous disease. Probably between 20 and 30 per cent of all dairy cows are affected with tubercle, although

fortunately it does not follow in the majority of instances that their milk contains tubercle bacilli, but about 2 per cent have tuberculous disease of the udders, in which case the milk is certain to contain tubercle bacilli in enormous numbers, and owing to the milk from these diseased cows being mixed with that from healthy ones, about 10 per cent of samples taken at random are found to contain tubercle bacilli. For a long time there was some uncertainty as to whether the tuberculous disease of cattle was transmissible to man, but it may now be taken as proved that in children a large proportion of cases of abdominal tuberculosis and of tuberculous disease of the glands is due to infected milk. It has even been suggested that some cases of ordinary consumption of the lungs are also acquired by the agency of infected milk, but this seems improbable. It is true that the danger to adults is small, nevertheless few people probably would care deliberately to drink a fluid which they knew contained living and virulent tubercle bacilli; yet they frequently do so if they habitually consume unboiled milk.

Many epidemics of typhoid fever have occurred in which the disease was unquestionably spread by infected milk. Cows do not themselves suffer from it, but the germs get into the milk through the use of infected water for washing out the milk cans. Scarlet fever is also some-

times conveyed by milk, either as a result of a disease in the cow which is probably scarlet fever, or by specific pollution of the milk before it reaches the consumer. Diphtheria may also be spread in the same way. Furthermore, it is probable that infantile summer diarrhoea, a disease responsible for the deaths of many thousands of children in this country every hot summer, is largely due to infected milk or to milk which is "on the turn," and the use of boiled milk would certainly tend to diminish the chances of infection, although of course boiling does not render a milk fit for consumption when once it has begun "to turn." So many impurities and consequently so many different germs may get into milk, either in the process of milking dirty cows with dirty hands, or from subsequent exposure in transit, in dairies, and in course of distribution, and in hot weather especially these germs multiply so rapidly, that it certainly seems preferable, if only from the standpoint of ordinary cleanliness, to destroy them all by boiling. If we could be quite sure that all our milk came from perfectly healthy cows, milked under ideal conditions, if it could be cooled down at once and conveyed to the consumer within a few hours in a manner which precluded the access of dirt or dust, then doubtless boiling would be unnecessary; but since these conditions can hardly ever be fulfilled, and, despite the possible

beneficial effects of recent legislation, are not likely to be for years to come ; since cows are often kept and milked under singularly unhygienic conditions, then it is surely better and cleaner to accept the extra safeguard which the simple process of boiling undoubtedly provides.

CHAPTER V

ALCOHOL

IT would indeed be a difficult matter to decide whether venereal disease or alcoholic excess plays the more important part in giving rise to illness and in shortening life. The question is the more complex inasmuch as the two are frequently combined. Bacchus and Venus are a closely associated god and goddess, and are often worshipped together.

Nowadays, fortunately, it were a work of supererogation to prove that alcoholic excess is harmful to health and to life. It is almost equally unnecessary to argue that complete abstinence from alcohol is compatible with the highest mental and physical vigour, and with the prolongation of life to its utmost limits. Total abstainers are numerous in all ranks and departments of society, and their lives form a practical and visible demonstration which all can watch, and the moral of which no words are needed to enforce. It is indeed difficult for us to-day to realize that so comparatively recently as 1840 a

healthy man, twenty-six years old, was asked to pay an extra premium of 10 per cent on a life-insurance policy solely because he was a total abstainer. It was regarded as improbable that he could survive to the average age unless he took alcohol. He founded a life-insurance company for himself, and lived to be eighty-two! Now a healthy teetotaller has no difficulty in getting a discount of at least 5 per cent off his life-insurance premium. The problem for consideration here is what effects for good or ill has the moderate use of alcoholic beverages on health, and incidentally (but by no means second in importance) what constitutes their moderate use.

Note that we are not now in any way concerned with the use of alcohol in disease. That is a purely professional question to be settled by the unanswerable argument of experience. Even if it be the virulent poison pictured in the brain of the most ardent abstainer, that is no reason for not giving it in cases of illness; many of our most valuable drugs are deadly poisons—arsenic, strychnine, opium, belladonna, to mention only a few.

Let us first of all clear the ground by getting rid of SOME COMMON DELUSIONS ABOUT ALCOHOL. I. *That it is a food and, therefore, a source of strength*, for it cannot possibly be a source of strength in any other way than by

being used in the body as a food. There has been a vast amount of somewhat unprofitable discussion as to whether alcohol is or is not a food. A builder-up of the tissues it clearly is not, but, inasmuch as within certain limits it is oxidized or burned up in the body, it follows that it is to a small extent a source of heat or of energy. It is, however, but rarely used for this purpose. If taken in sufficient quantity to be of any appreciable value as a food it must seriously damage the tissues. Also it would be excessively expensive, for even in Bavaria, the land of cheap beer, the cost of the latter is about eight times that of an equivalent amount of bread. Of course some alcoholic beverages, notably beer and stout, contain a considerable amount of digestible carbohydrate; but we do not usually regard tea as a food merely because many people add sugar and milk to it. No doubt alcohol may be useful in certain emergencies as a spur, or in acute diseases as a readily available form of food requiring no digestion, but we are not considering here its use under special circumstances, but in the ordinary conditions of everyday life. If fresh water is not available for a ship's boilers, we must perforce use salt water instead, rather than she should fail to reach her destination, but the boilers will suffer in the process; so it is with the use of alcohol in emergencies. All experience conclusively proves

that alcohol in the daily routine of life is a source of weakness and not of strength in the performance of work, either physical or mental.

2. *That it is a source of warmth.*—This common belief depends upon the fact that alcohol dilates the cutaneous vessels and so makes the skin feel warm. It is important to realize that when the body is exposed to cold the blood vessels of the skin contract and so retain heat in the interior of the body, a very essential protective mechanism. Alcohol by dilating the superficial vessels prevents this retention and so leads to a rapid loss of heat, a loss which under conditions of exposure may much exceed any heat produced by the oxidation of the alcohol taken. It follows, therefore, that it is highly dangerous to persons who are exposed to severe cold after taking it, a fact well known to and universally acted upon by explorers and travellers in cold regions.

3. *That it increases mental vigour, or sharpens the wits.*—It is true that for a very short time alcohol quickens mental activity owing to the increased supply of blood sent to the brain by the more quickly acting heart, but repeated and definite experiments have shown conclusively that after a few minutes, even such a comparatively small quantity as one ounce of alcohol (equal to about four tablespoonfuls of whisky or brandy) (1) slows all mental processes ;

(2) diminishes the output of voluntary work ;
(3) diminishes the special regulating influence of the brain on movement and the maintenance of the equilibrium. Yet the strange fact remains that people under its influence always think they are doing their work better and more quickly than before, although they are really doing it worse and more slowly, just as they imagine it is making them warmer when as a matter of fact heat is rapidly being lost from the body and the internal temperature lowered. Interesting and striking examples of the truth of the old-time statement of the Wise Man that "wine is a mocker."

4. *That it helps people to sleep.*—It is, of course, quite true that if taken in sufficient quantity alcohol will very effectively send anyone to sleep, and in smaller amounts it certainly has as a rule a sedative effect, after a preliminary stage of excitation ; but its action in this respect is simply that of a hypnotic, or ultimately of a narcotic, just like opium, chloral, or veronal, and the man who requires a sleeping draught every night had better consult his medical adviser without delay.

Let us consider next THE POSSIBLE BENEFICIAL EFFECTS OF ALCOHOL.

I. As a minor advantage we may note that *after* exposure to cold, when it is desired to get the blood back to the skin as quickly as possible,

alcohol may be useful for precisely the same reason (its dilating action on the blood vessels of the skin) which makes it highly dangerous if given before such exposure.

2. Its effect on digestion. Alcohol, except in quite small quantities, and especially if taken apart from food, acts as an irritant to the stomach, causing symptoms either of acute inflammation or of chronic indigestion, according to whether a large quantity is taken at one time or a smaller amount at frequent intervals. These results are unfortunately only too familiar. A little dilute alcohol, however, taken at the beginning of a meal, may under certain circumstances undoubtedly help digestion. When at the close of a heavy day's work, perhaps in a vitiated atmosphere, a man comes home tired and jaded, with no appetite for his dinner, because his nervous system is exhausted and his digestive glands almost incapable of secreting, at such a time a little alcohol gives the requisite stimulus to the stomach and to the nervous system, the salivary and gastric glands begin to secrete, the formation of the other digestive juices automatically follows, appetite returns, and digestion proceeds satisfactorily. Hence the physiological basis of the oft-quoted advice of St. Paul to Timothy: "Use a little wine for thy stomach's sake and thine often infirmities." We must note, however, that we

are passing here rather beyond the border-line of health, and the apostle's advice is often applied far more widely than even the broadest interpretation of his words could warrant. Still, there is no doubt that this action of alcohol may be useful : it is easy to assert that appetite and food should be sufficient stimuli for digestion, in our present oft-times over-wrought and largely artificial lives this is a counsel of perfection. Men will resort to stimulants of one kind or another. Fortunately, so far as digestion is concerned, soup, especially clear soup, adequately replaces alcohol, and the custom of beginning a meal, particularly the last meal of the day, with a little soup, is undoubtedly a right and natural one. Clear soup has very little value as a food, but it contains various bodies which probably stimulate the functions of the stomach as efficiently as alcohol and without the possible drawbacks of the latter.

3. It promotes fluency of conversation, and so perhaps adds to the agreeableness of life, making people more lively and companionable. Undoubtedly alcohol, by diminishing nervousness, shyness, and reserve, enables a man for a short time to speak more easily and fluently. It renders the taciturn man talkative, the timid confident, the reserved man bold, the stingy generous ; it loosens the stammering tongue and encourages the hesitating lover. It is,

however, desirable to emphasize the fact that these changes are the first stage of that loss of control over the higher centres which is such a characteristic feature of the action of alcohol, and that such manifestations, pleasing though they may be at first, very easily and quickly pass into something far less attractive. Confidence becomes Dutch courage, boldness becomes arrogance, generosity extravagance; the talkative man becomes garrulous and too communicative (*in vino veritas*), the boastful man insolent and domineering. Also we must not forget that the subjective feeling of happiness induced by alcohol is of a very temporary character, and is commonly followed by a stage of reaction in which the individual craves for more stimulant.

DANGERS WHICH ATTEND THE HABITUAL USE OF ALCOHOL.

I. Alcohol belongs to that class of drugs which tends to induce what is known as "a habit" (opium, morphia, chloral, and cocaine are other conspicuous instances)—that is, they set up a craving which can be satisfied only by further supplies of the drug, often in increasing quantities. There are in consequence a very large number of people who habitually take more alcohol than they can oxidise or burn up in their bodies, and who are best called chronic tipplers. Probably they are never drunk, in

fact they become almost immune to the ordinary phenomena of drunkenness. They are frequently most respectable members of society, they and their friends would scorn and resent the imputation that they take too much ; yet week in, week out, year by year, they really consume an altogether excessive quantity of alcohol. They are exceedingly bad lives for two reasons : (a) they suffer from premature degeneration, especially of the most specialized and highly developed tissues, owing to the alcohol interfering with the processes of oxidation which are continually going on throughout the body ; (b) their resistive power to disease-producing germs of all kinds is diminished, consequently they are predisposed to tuberculous diseases, and often succumb with startling rapidity to pneumonia. It is people of this class who increase so greatly the mortality amongst non-abstainers in life-insurance companies as compared with that amongst the total abstainers. A drunkard will not be accepted for life insurance at any price if he is detected, but, as already explained, these chronic tipplers do not rank as drunkards and it is impossible to exclude them. Undoubtedly it is not right to assume that the difference between the mortality of the abstaining and non-abstaining sections of a life office is entirely a question of alcohol, for the life of a total abstainer is likely

to be a good one from the insurance point of view in other respects also, as such a man is likely to be temperate in all things ; nevertheless, the effect of the alcohol is certainly a very real one.

2. Alcohol weakens self-control, and thus increases the danger of the formation of "a habit." It is as a result of this gradual loss of self-control, especially in later life, that we see some of the most deplorable effects of alcohol ; for it drags down, not as do some forms of alcoholism, chiefly the feeble-minded and degenerate, but some of the most attractive and most brilliant of our fellow-men. It is indirectly responsible also for a great deal of venereal disease ; many a first lapse from virtue, with all its far-reaching and disastrous results, occurs when a young man or a young woman, at an age when passions are strong and self-control is weak, is brought under the influence of an agent which still further stimulates the passions and still more weakens self-control. Can any one of us boast of so much self-control that he can safely afford deliberately to diminish it ?

LIMITATIONS TO THE POSSIBLE SAFE REGULAR USE OF ALCOHOLIC DRINKS. I. *The quantity must be strictly limited.*—Probably it is not wise or safe to take regularly more than the equivalent of an ounce or an ounce and a half of absolute alcohol *per diem*—that is, a

pint to a pint and a half of beer or cider, a small bottle of light wine, or two to three ounces of spirits. Persons leading an active outdoor life can safely take a little more than those engaged in sedentary occupations.

2. *It must be well diluted*, to avoid its directly irritant effect upon all tissues with which it comes into contact, an action well illustrated by the chronic irritation of the throat and stomach from which so many chronic tipplers suffer, and which leads to the morning vomiting of which they often complain. This is one reason why the drinking of strong spirits, and especially the cruder and cheaper forms of spirits, is so injurious. It is interesting to note that in France, the greatest wine-drinking country in the world, the ordinary table wine is commonly taken diluted with an equal quantity or more of water, although the wine to begin with is weaker than that which is exported to England, to which alcohol is added to prevent it turning acid as a result of travelling.

3. *It must be taken only with food*, otherwise its special action in stimulating the functions of the stomach, to which reference has already been made, is not only wasted, but becomes actually mischievous. Even with food it should only be taken in the latter part of the day, for in the morning, when the bodily functions are still fresh and vigorous, it is obviously not called

for ; only the most confirmed toper takes alcohol before breakfast.

4. *It must not be taken with the idea that it is a help to work, either physical or mental.*—Nothing is more clearly established than that alcohol, however much it may assist in a very short spurt, quite definitely diminishes the power for sustained work, both of the body and of the mind. It should be partaken of only when the day's work is ended.

5. *Its use must be confined to adult life.*—Children have no desire for it, and by universal consent it should not be given to them. Moreover, the disasters we witness all too frequently from the consumption of alcohol in adolescence should deter us from doing anything to encourage its use in the early years of manhood or womanhood.

Were alcohol always used strictly in accord with the above limitations, the question of its use would become for the majority of people somewhat of an academic question, an interesting topic for debating societies, but of little greater practical importance than the oft-discussed problem of the use of tobacco, though it might still remain uncertain whether a poison, such as alcohol undoubtedly is in large quantities, is any the less a poison when taken regularly in amounts so small that no immediate injurious effects are evident. Unfortunately, the

difficulty cannot be so easily got rid of, for two reasons. 1. There are some individuals who are peculiarly susceptible to the influence of alcohol, so that even quite a small quantity completely upsets their nervous system. There are others who are absolutely unable to take a small amount only, they readily drink to excess on the slightest excuse—a christening, a wedding, a funeral, or a Bank Holiday; or else, from time to time, without any excuse whatever, they have uncontrollable bouts of alcoholic excess, lasting perhaps for several days. No doubt many of these people are mentally defective; some of them end their days in lunatic asylums, others get into inebriate homes, and it has been shown that the majority of the inmates of these homes display some degree of mental deficiency, quite independently of the results of alcoholism. The point to emphasize, however, is that for these individuals there is no such thing as moderate drinking, there is no half-way house, they must either be total abstainers or drunkards; their self-control is below normal to begin with, and quite small quantities of alcohol suffice to destroy what little they possess. They raise in an acute form the ever present and always difficult problem, how far the strong are to deny themselves for the sake of their weaker brethren.

2. Owing to the effect of alcohol in diminishing self-control and in giving rise to “a habit,” we

know that a certain proportion of those who start as moderate drinkers will sooner or later consume a gradually increasing quantity, and though they may never become drunkards, yet they will seriously damage their health and materially shorten their lives.

Finally, we may conclude that alcohol, if taken in strictly limited quantities and under very definite limitations, is not likely in the majority of healthy individuals to do any material damage to health, and that it may even add something to the agreeableness of life. On the other hand, it must be admitted that (to put it perhaps too mildly) no possible harm can come from total abstinence, that alcohol cannot be taken habitually without a certain amount of risk, and that it is essential to exercise the greatest possible care to avoid the formation of a habit and of a gradual increase in the quantity taken. Unfortunately, also, it is but too evident from the number of medical men, even in the highest ranks of the profession, who have fallen its victims, that the fullest knowledge of the dangers attendant upon its use is no sufficient safeguard against their avoidance.

MEDICATED WINES, ETC.—A word of caution may be given here in regard to the use of a class of preparations at present very largely advertised, namely, medicated wines and wines pur-

porting to contain more or less food material. It should be known that these drinks usually contain about 20 per cent of alcohol,—that is, about as much as is present in port or sherry,—and also that they are sometimes sold under names in which there is nothing whatever to suggest the presence of any intoxicant, so much so that the writer has met with rigid teetotallers who have been partaking of them regularly, under the impression that they were drinking merely so much food or medicine. They may easily be the means of starting an individual quite unconsciously along the downward path of alcoholic excess, or they may be used by tipplers and drunkards as a means of getting drink surreptitiously, and when other sources of supply have perhaps been cut off, thus defeating the efforts of relations and friends to effect a reformation. If it is desired to give a patient certain drugs and alcohol as well, it is far better to give them separately, and the exact kind and strength of the alcoholic beverage taken is then accurately known. Similarly, it is preferable to give food and alcohol separately, for the actual amount of nourishment which can be administered in a strongly alcoholic drink is necessarily exceedingly small,—what there is is largely sugar,—and if for any reason it is desired to combine the two, various kinds of stout, porter, or beer are available, which contain a much smaller

percentage of alcohol together with an appreciable quantity of very digestible carbohydrate. There is no doubt that these preparations of wine with drugs or with food are attractive to people mainly or entirely by reason of the alcohol they contain, whilst at the same time they enable those who partake of them to soothe their consciences with the reflection that they are really only drinking a medicine or a food. These concoctions are, moreover, an exceedingly expensive way of procuring either alcohol or nourishment.

TEA, COFFEE, AND TOBACCO.—This is the best opportunity for referring to the influence upon health of certain other bodies which may be classed with alcohol as having little or no value as nourishers of the body, but which are to be regarded as accessories to food, and one or other of which seems to be almost indispensable to civilized mankind—I refer to tea, coffee, and tobacco. Little need be said of these bodies, because their influence upon health is probably quite slight, provided that two facts are recognized: First, that they must be used in moderation, for like everything else their excessive employment may do harm, and sometimes considerable harm. Second, that there are some people who have a special susceptibility for one or other of them, and who should therefore only

partake of them in unusually small quantities, or better still, abstain altogether. There are, of course, various foods in regard to which the same idiosyncrasy exists.

Tea and coffee (the latter much less used than tea in this country) stimulate the heart and nervous system, but fortunately their use, unlike that of alcohol, is not followed by a narcotic effect or reaction. As a rule tea, if properly made, does not seriously affect digestion, but it may do so, especially if taken on an empty stomach or with a heavy meat meal. Consequently "morning tea" and "high teas" are somewhat doubtful blessings. Tea should be merely "infused,"—that is, boiling water should be poured on to it, left for not more than five minutes, and then poured off again. If it is boiled or allowed to stand (or stew) indefinitely, an increasing amount of tannin is extracted from the leaves: such tea may cause much digestive disturbance. Even properly made tea, if taken in large quantities (and in some individuals in quite small amounts), may lead to indigestion, general nervousness, palpitation, giddiness, and insomnia. It necessarily does harm if taken instead of food, or to mask the effects of fatigue, and so enable a man to go on working when his brain really needs rest.

Smoking is obviously a pure luxury and a rather expensive one, for very often the money

spent altogether selfishly on tobacco could obviously be expended to far greater advantage in other directions. It has also the drawback that like alcohol it gives rise to "a habit or craving," so that a confirmed smoker often prefers to sacrifice his dinner rather than his pipe. It is always an interesting question how far it is desirable for men or women deliberately and quite unnecessarily to place themselves under the dominance of an additional passion or appetite. Two ounces of tobacco a week may be regarded as a quite moderate quantity, the smoking of which is not likely to do any harm to average individuals. Larger amounts may cause irritation of the throat, functional derangements of the heart, leading to palpitation, etc., and occasionally impairment of vision, which, if the smoking is persisted in, may be permanent. In a certain number of people these consequences result from the use of a quite small quantity of tobacco, and for such the only safety lies in abstinence. Special caution should be exercised in cigarette smoking.

CHAPTER VI

FRESH AIR AND EXERCISE

THE comparison of the human body to a furnace in which food and oxygen are burned up to produce heat and energy is an old and trite one. Like all analogies, it is not absolutely perfect, but none the less is fairly accurate. Of the food taken by the mouth part is used in the building up and repair of the body, but, after growth is completed, by far the larger portion is utilized in the production of muscular energy and in maintaining the bodily temperature at a fixed point, quite irrespective of that of the surrounding air. For these purposes it is necessary that the food be burned up or oxidized in the tissues, the necessary oxygen being supplied in the air we breathe.

The chief constituents of atmospheric air are nitrogen, 79 per cent, and oxygen, 21 per cent, the former acting merely as a diluent to the active and all-important oxygen. In addition there is a minute quantity of carbonic acid gas, from 3 to 8 parts per 10,000. In the air, however,

which is expired from the lungs, whilst the nitrogen remains almost unaltered, the oxygen has fallen to 16·5 per cent, and the carbonic acid gas has increased to 4·5 per cent—that is to say, from the recesses of the lungs a certain amount of oxygen has been absorbed into the blood, whilst conversely a corresponding quantity of carbonic acid gas, representing the result of combustion in the tissues, has been given off from the blood into the pulmonary air spaces. If a vigorous circulation is not maintained through the lungs an adequate quantity of oxygen is not taken up and carried to the tissues generally, hence shortness of breath is one of the earliest symptoms of heart disease, when the action of that organ is beginning to get feeble and can no longer keep up a sufficient flow of blood.

It is obviously essential for health that the air we breathe should be pure, and under ordinary conditions of life the commonest cause of impurity is air which has been breathed before and in which, consequently, have accumulated the waste products of respiration. The most abundant and best known of these is carbonic acid gas, and when the quantity of this exceeds 8 parts in 10,000 the air may be regarded as impure and unsuitable for breathing. As a matter of fact, the unwholesomeness of such air is not dependent upon the gas itself, for even 1 per cent of it

in air which is otherwise pure does no harm, but it serves as an indication of the presence of other impurities more subtle and far more serious in their effects. It is these latter bodies which give to air contaminated by respiration its disagreeable smell (carbonic acid gas is quite odourless), which fortunately enables us to detect the presence of excessive respiratory impurity in air without having to resort to any elaborate chemical analysis. The sense of smell furnishes us with a simple and sufficient test, for if on going from the open air into any room or covered space we notice that the air is distinctly close or even offensive, we may be sure that it is unfit for prolonged respiration. Those in the room are quite unable to judge of the impurity, as they rapidly become habituated to the polluted atmosphere. It follows, therefore, that all living-rooms need to be adequately ventilated, and we have to consider what this involves. An adult requires 3000 cubic feet of air per hour during repose (much more if hard muscular work is being done), but in this climate the air in a room cannot be completely changed more than three or four times an hour without producing draughts which will probably lead those in the room to close the inlets, unless the incoming air is first warmed. Hence it follows that each adult in a room which is occupied continuously for more than an hour or two needs a cubic space of

between 1000 and 750 feet, and then if the air in the room is changed three or four times in the hour, as can usually be done without difficulty, the requisite 3000 cubic feet are obtained. Children require proportionately less. In factories, workshops, schools, places of amusement, etc., where large numbers of people are collected in a limited space, special arrangements for securing adequate ventilation are necessary, but with these we are not concerned here. In ordinary dwelling-houses, however, the difficulty of getting proper ventilation during the day is, as a rule, not great; in summer it is secured by open windows, and in winter by fires in open grates. The latter are very wasteful of heat, the greater part of which goes up the chimney; but the fire creates a current of air which in a medium-sized room gives sufficient ventilation for six or more people, and it for any reason there is not an adequate draught, the fire calls attention to the fact by beginning to smoke. If open fireplaces were abandoned in this country the problem of the ventilation of our living-rooms would certainly become a much more difficult one. At present the question is most important in regard to our bedrooms. During the day we are constantly going either in and out of doors, or from one room to another, and consequently we do not often remain for many consecutive hours in vitiated air. On the other hand, we

spend on an average at least one-third of the twenty-four hours continuously in bedrooms in which, as a rule, there is no fire to promote due ventilation. Very often also the cubic area of the room is unduly small, and consequently the air in it gets markedly stuffy by the morning. It follows that in every bedroom there ought to be an open chimney—tidy housewives only too often keep this covered, probably from ideas of cleanliness—and that the window should be kept open all night, thus ensuring the passage of a continuous current of air through the room. There is no reason whatever for the old prejudice against night air; perhaps it originated from the times when mosquitoes, bearing the infection of malaria, were abundant in this country. As a matter of fact, in towns the night air is certainly purer than that of the day, because it contains much less dust, and perhaps the only atmospheric condition under which it may be desirable not to have the window open is during a dense town fog, when the air contains very irritating sulphur products of imperfect combustion. In addition it is of course most important that the bedroom should be of sufficient size. In common lodging-houses the legal minimum is only 300 cubic feet of space per adult, which is undoubtedly much too low and makes adequate ventilation almost impossible. An adult really needs a bedroom not less than, say, 12 feet long,

8 feet broad, and 8 feet high, although, of course, in small houses and in public institutions this ideal is often not attained. Sick people, who have to spend the whole twenty-four hours in one room, should have at least double this space. A good deal may be done to diminish the disagreeable effects of overcrowding, when large numbers of people are collected together, by keeping the air in constant movement and preventing it from becoming overcharged with moisture. In bedrooms, however, such measures are less practicable, and undoubtedly the constant breathing of impure air, and especially of air polluted by the products of respiration, gives rise to headache, languor, and anæmia, so that the best work cannot be performed. Furthermore, it leads to a lowering of the general vitality and to a notable diminution in the resistive power of the body, especially to the various infectious diseases. Moreover, the greater the number of people who are gathered together in a confined space, the more likely is it that the causal germs of one or other of these diseases will be present, perhaps in large numbers, especially those which cause influenza and the common cold in the head or throat. Consequently we catch cold far more often inside a crowded omnibus than on the top ; more often in a closely packed place of amusement or ill-ventilated church than in the open air, no matter how cold

and windy it may be. It is wise, no doubt, to avoid a draught,—that is, a current of cold air blowing on one particular part of the body, and especially on the back of the neck, the abdomen, the shins, and the feet,—but, with this precaution, the more fresh air we get the better, both for the maintenance of a high level of general health and for the avoidance of a great many diseases. Perhaps the most important bad effect of impure air is the way in which it increases the liability to consumption. Numerous examples might be given, the following is certainly one of the most striking. Many years ago it was found that the death-rate from consumption among the Foot Guards was more than twice as great as that of the civilian population, although the soldiers were picked men living for the most part under good hygienic conditions. On investigation, it was found that there was great overcrowding in the barrack dormitories, the cubic space per man being often not more than one-half or two-thirds of the low minimum of 450 feet allowed by regulation. The air in these rooms was also found to become offensive before morning. The introduction of improved conditions was speedily followed by a great fall in the death-rate from consumption. Conversely, we have learned in recent years that for the arrest of consumption the most essential factor is an abundant supply of fresh air both by day and by night. All

sanatorium treatment is based upon this fact. Obviously it is far better and infinitely more economical to use the fresh air for prevention rather than for cure. The question of climate is of secondary importance: it is perfectly possible to breathe an excessively impure air in the most ideal of climates, as for instance in a stuffy ship's cabin in the middle of the ocean, in the ball-room of a hotel in the high Alps, or in a concert-hall or dining-room on the Riviera.

It is not sufficient, however, for a man merely to have pure air and plenty of it to breathe; if he is to keep in really good health it is equally necessary that the oxygen which is absorbed from the lungs into the blood should be carried freely to every part of the body, and for this it is essential that the circulation should be vigorous. The most important factor in promoting a good circulation is muscular exercise. Reverting to the old simile of the body to a fire or furnace, we recognize that if the fire is to burn satisfactorily, not only must there be plenty of air available, but it must be drawn through the fire by the establishment of an adequate draught, otherwise the fire will burn smokily and perhaps go out altogether, and the same thing will happen if the coal is so closely packed that the air cannot get freely into it. It is the same with the human body: if a man does not take sufficient exercise and so pass plenty of blood, and the oxygen which

it carries, though all his tissues and organs, his waste products will not be properly burned up and got rid of, they will accumulate in his body, and in one way or another his health will suffer.

In children and young adults the question of insufficient exercise rarely arises, in fact among the middle and upper classes it is well recognized that the danger lies rather in too much than in too little physical exertion. Neither is there likely to be any trouble for those who lead a healthy outdoor life in the country. The difficulty is one which affects town dwellers when they settle down to the steady work of life, at some more or less sedentary occupation, and especially after they get married. Take a typical example. A young man of about five-and-twenty, who from boyhood has been accustomed to vigorous exercise of all sorts,—cricket, tennis, and boating in the summer, football in the winter,—suddenly alters his entire mode of life. Morning by morning he walks from his house, a quarter of a mile or less, to the nearest omnibus or tube station, and at the other end of the journey about the same distance to his office or place of business. In the evening he returns in the same way, and so walks about a mile a day in all. At the week-end, instead of playing some strenuous game or getting a long walk, he is content with a quiet stroll with “the missus,” or accompanies the baby into a neigh-

bouring park. In the summer, instead of spending his holiday climbing in the Alps or shooting over the moors, like a good husband and father he takes his wife and family to the seaside, has no doubt a daily bathe, but for the rest of his time spends the morning reclining on his back on the sands, whilst in the afternoons he goes alternately an excursion on a char-à-banc and a trip on a pleasure steamer. In the evening he sits on the parade and listens to the band. Consequently instead of getting rid, as in former years, of any superfluous fat, he returns stouter than he went. After two or three years of this kind of life he finds he is not so well as he used to be ; is stouter, more flabby, feels languid, is easily tired, complains of indigestion, headaches, and disturbed nights. He probably consults his family doctor, and expects to be cured by a few bottles of medicine and some aperient pills. Disappointed in this expectation, he tries in succession a number of much advertised quack remedies, only to find that the weight of his purse diminishes more markedly than that of his body. He has to learn that he needs not medicine, but a complete change in his mode of life and a return to the paths of physiological righteousness. He must realize that the penalty for neglect of the laws of health is ultimately and inevitably exacted, oft-times with accumulated interest. The old warning " The soul that

sinneth it shall die " is just as true in the physical as in the moral world. Unfortunately, the punishment may be long deferred, so that too often men fail to recognize the connexion between cause and effect, hence the profound truth of the words of the Preacher, "Because sentence against an evil work is not executed speedily, therefore the heart of the sons of men is fully set in them to do evil." We have to realize that we can never remain really well unless we take regular and sufficient outdoor exercise. Both men and women need it, but what is sufficient for the average woman does not suffice for the average man, for the former has the safety valve of the monthly menstrual discharge, and obviously when bearing children women are quite unable to take the amount of exercise necessary for men.

Undoubtedly one of the most difficult problems of modern life in large cities is how to get enough exercise. First of all we must realize that a certain amount of *daily exercise* is essential; more harm than good may result from an attempt on the seventh day to make up by prolonged or very strenuous exertion for the deficiencies of the previous six days. During the long days of summer opportunities are greater, it is in the winter that the difficulty is accentuated. For the vast majority walking is the only form of daily exercise available. A morning ride is excellent, but of course is the privilege only of the few.

Modern facilities for rapid transit by tubes, motors, etc., have many compensatory drawbacks, especially if they induce people to give up walking. I know of one very busy professional man who turns out every morning throughout the year for an hour's tramp round one of the London parks. The determination required to keep up this habit is a good measure of the energy which the man, with conspicuous success, puts into his daily work. I met recently a wealthy man who has a very large establishment a few miles from London, with motors and every luxury, but morning by morning he walks the two miles between his house and the nearest station and back again in the evening; naturally, his doctor said he very rarely needed any professional advice. Most men, if they really make the effort, can manage to walk three or four miles daily, even if it be only by walking a part or the whole of the way to or from business.

In addition to the daily walk some longer and more vigorous *weekly exercise* is desirable, and especially is it necessary for the town dweller to try to get into the open country. Cycling, tennis, rowing, cricket, all have their uses and their devotees, and the popular game of golf provides a fair amount of walking in open air, together with something to interest the mind and even stimulate the ambition. For many,

however, walking will still remain the most available and certainly the most economical form of exercise, and fortunately not very far from nearly all the large towns of this country there are attractive districts, abounding in quiet by-roads and quieter field-paths, where motors and even cyclists cease from troubling. Walking in a hilly district is always far preferable, both for body and mind, to walking in a flat country, as it leads to more varied movements and consequently exercises a larger number of muscles; also the more vigorous contraction of the respiratory muscles necessitated by climbing a steep hill gives rise to pressure upon the liver which greatly helps the functions of that important organ. Round London the hills of Surrey and Kent to the south and the Chiltern Hills on the north-west present an almost endless variety of attractive and very accessible rambles. The large towns of the north of England and of Scotland are for the most part even more advantageously situated in this respect. To a great extent climatic conditions may safely be disregarded; the percentage of days on which the weather is really unsuitable for open-air exercise for a healthy adult is, certainly on the east side of this country, quite small.

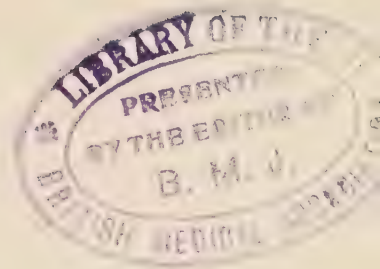
The week-end habit is undoubtedly an excellent one in many respects for busy town dwellers, but like all good things it needs to be rightly

used. If it merely serves as an excuse for going to a luxurious hotel, eating three rich meals a day, drinking freely of alcoholic beverages and smoking more than usual, whilst all the exercise obtained consists of a few quiet strolls on the sea front, then it does more harm than good. If, on the other hand, it affords a thorough mental rest from the worries and strain of a busy business or professional life, if a man gets as much vigorous exercise in the fresh air as befits his age and physical condition, and if he does not gratify to excess the appetite and thirst created by that exercise, then he will return better and stronger both in body and mind, and with a fresh store of reserve energy to meet the stress of his daily work.

Finally, in addition to the daily walk, and to the weekly outing in the country, there should come *the annual holiday*, very important for health, enjoyed much more if the daily and weekly exercise has been maintained, but easily misspent and capable of doing harm rather than good. Plenty of active exercise during this holiday is most desirable, especially for those in early middle life, but it must be borne in mind that just as it is not possible by strenuous exertion on the Saturday or Sunday to make up for lack of exercise during the week, still less is it possible or desirable during the annual holiday to atone for an altogether sedentary life

during the other eleven months of the year, and it is not safe for an entirely untrained man to attempt without adequate preparation the athletic feats for which he was always more or less in training in his early years. As an example of how *not* to begin, may be mentioned the conduct of a man the writer once met at one of the most loftily situated of Swiss mountain hotels. He had left London one morning, travelled all night straight through to Switzerland, and reached the railway terminus the following afternoon. In a very hot sun he at once started the ascent of 5000 feet to the hotel, and by way of convincing himself that he had not lost any of his pristine vigour, walked up without stopping and as quickly as possible, covering the distance in three hours. He confessed that at the end he felt very queer, had most uncomfortable sensations about the heart, and was incapable of doing much for the next few days, after which he slowly improved. Probably the unaccustomed exertion led to definite heart strain with some dilatation; as he was still comparatively young and sound the heart was able to recover itself; but many a man has permanently damaged his heart and greatly shortened his life by such unwise over-exertion. Just as the experienced mountaineer at the commencement of a long climb goes at a slow pace, exasperating to the impatient novice,

so the man who has got soft and flabby in town, especially if he is approaching middle life, should accustom himself very gradually to severe and prolonged exertion of any description.



CHAPTER VII

UNSUSPECTED CAUSES OF DISEASE IN THE BODY

IT is unfortunately not very uncommon to hear of a man who has been regarded as just, upright, and honourable, falling with apparent suddenness into some great and grievous transgression, and bringing himself into the grip of the criminal law. Were the full details of such cases known, it would be found that in most, if not in all, the fall was not so sudden as it at first appeared to be, but that for a long time there had been some moral degradation, some yielding to temptation, which however had been completely hidden from the eyes of the world, and hardly realized perhaps by the man himself. As in the moral realm, so in the physical, we know of men apparently healthy and vigorous who quite unexpectedly become seriously ill, and perhaps die in a few days : but the disaster is not absolutely sudden ; these men have had somewhere or other in their bodies some latent focus of disease, giving rise to few or no symptoms, its very existence perhaps hardly suspected even

by the patient himself, and yet capable at any moment, from some trivial cause, of setting up an acute and possibly fatal illness. Let us consider very briefly the nature of some of these lurking dangers, and how we may best guard against them.

1. *Diseases of the teeth and gums.*—As soon as the teeth begin to ache people are ready enough to seek relief, but it is not sufficiently known that there are affections of the teeth, and still more of the gums, which may be attended with little or no pain or inconvenience of any kind, and yet are capable of giving rise to very serious consequences. The most important disease of this kind is called *pyorrhœa alveolaris*; it occurs especially in early adult and middle life, and is due to the gums shrinking away from the teeth and so leading to the formation of pockets in which first food and afterwards “matter” (or pus) accumulates. Later on the teeth get loose, and may finally drop out. The disease is exceedingly common amongst those who do not attend to their teeth, but even the greatest cleanliness may not suffice to prevent its occurrence. It is a remarkable fact that it may be present for years without giving rise to any obvious mischief, nevertheless at any time, and sometimes quite suddenly, symptoms may arise, either as a result of some lowering of the general health and resistive power of the body,

or perhaps from some increase in the virulence of the germs which cause the inflammation of the gums. The consequences are most varied and produced in different ways: sometimes the breath becomes very offensive, and septic germs from the mouth are drawn into the air passages with inspiration and set up inflammation in the lungs; the pus may be swallowed and give rise to symptoms of severe stomach disorder, for although the quantity swallowed at one time is almost imperceptible, yet the total amount in twenty-four hours may be considerable; or again the pus may be absorbed directly into the blood vessels of the gums, and so give rise to a gradual blood poisoning. In some of the latter cases inflammatory changes, acute or chronic, occur in many of the joints, seriously crippling the patient; in others, there is a grave general illness, which may closely simulate an attack of typhoid fever, and even prove fatal. It is not rare to meet with people who have been ill for weeks, with continuous fever and extreme prostration, in whom removal of some or possibly of all the teeth is followed by complete and rapid recovery.

It is an excellent rule for everyone to visit his dentist at least once or, if there is any suspicion of disease, even twice a year, so that commencing decay in the teeth themselves and also early pyorrhœa may at once be treated. In this way

as a rule the disease may be cured or at any rate kept in check, the onset of constitutional symptoms prevented, and the possible need for extraction of many or all the teeth averted.

2. *Ear disease.*—It is quite a common thing, especially in childhood and early adult life, for inflammation of the throat to extend to one or both ears, especially in connexion with scarlet fever, diphtheria, measles, influenza, or even a severe ordinary cold. As a result matter (pus) often accumulates in what is known as the middle ear, eventually ruptures through the drum of the ear, and is discharged through the external ear. In the early stage of the disease there is usually severe pain, but this soon subsides when the pus begins to escape. The result is that people often take little or no notice of the continuance of the discharge, and allow it to go on indefinitely ; in fact, they frequently seem to regard it as a good thing rather than otherwise, as a sort of outlet for all kinds of evils, just in the same way as a man will at times excuse himself for some particular vice on the plea that he must do something which is wrong, and that if he does not (for instance) drink to excess it is quite excusable that he should gamble. It is certainly true that if matter is being formed in the ear it is essential for it to escape, any retention at once gives rise to serious symptoms. It cannot, however, be too widely known that a discharging

ear is always a possible source of grave danger and calls urgently for treatment. At any time the inflammation is liable to extend to the important structures in the neighbourhood of the ear, and give rise either to an abscess in the brain, to inflammation of the membranes of the brain, or to various forms of blood poisoning, all of them complications of the gravest possible description, and likely to develop with little or no warning. An important precaution for anyone with ear disease of this kind is absolutely to avoid sea-bathing. A man who regards a discharge from the ear as a matter of no particular consequence will be rudely disillusioned if he presents himself as a candidate for life insurance. In an early stage the disease is not as a rule difficult to cure, but chronic cases may be very intractable.

3. *Old appendix trouble.*—Everyone nowadays has heard of appendicitis. It has certainly become more frequent and also more severe during recent years; why, no one quite knows, so that unfortunately we can say very little about how to guard against its occurrence. It should, however, be recognized that anyone who has once had an attack and not been operated upon, is most likely carrying about a veritable powder magazine in his abdomen. The probabilities are that sooner or later, and with little or no warning, he will have another attack, the

severity of which it is perfectly impossible to gauge beforehand ; it may be very slight, or it may be quickly fatal. It is far safer to have the appendix removed during what is known as the quiescent period, a procedure involving very little risk, than to wait for another attack, when an operation may have to be performed hurriedly and under far less favourable conditions. This advice applies with especial force to those who may have to spend more or less of their time in places where skilled surgical help is not at once available.

4. *Areas subject to chronic irritation.*—Among the few facts as to the causation of cancer about which we are certain, the most important is that it is especially prone to occur in parts of the body which are subject to chronic irritation of any kind, particularly in middle and later life. This is true of cancer of any part of the body, but especially of the mouth and tongue. For instance, cancer of the lower lip is met with almost exclusively in smokers, beginning at the spot where the pipe is habitually held. Similarly cancer of the tongue may certainly be started by the rubbing of a jagged tooth, or of a badly fitting tooth-plate, by the frequently recurring friction of the rough end of a clay pipe, or even by repeated applications of caustics to a sore or inflamed patch on the tongue. A sore place on the tongue should on no account be neglected.

Mention may be made here of the fact that

the ordinary pigmented mole should always be regarded with some suspicion, as in later life it is apt at times to take on gradually a malignant or cancerous growth, or even to give rise to multiple tumours scattered throughout the body. A mole which shows signs of steady growth, or the surface of which becomes rough and sore, should always be removed.

5. *Old tuberculous foci*.—It frequently happens in childhood, and not uncommonly in early adult life, that the lymphatic glands of the body become infected with tubercle, sometimes the external ones, especially those of the neck, and sometimes the internal ones of the chest and abdomen. Very often changes occur which lead to the formation in these glands of a kind of abscess, the matter from which eventually escapes or is evacuated by operation, but in many instances the disease becomes completely quiescent, and may cause no symptoms or trouble of any kind for an indefinite period, perhaps not for the remainder of a long life ; nevertheless, in many of such cases the germs of tubercle still remain alive, or in a condition of suspended animation, in the old focus of disease. Similarly, it is not at all uncommon, much more so in fact than is generally known, for tuberculous disease to start in a lung, often in connexion with an attack of pleurisy, and to become arrested long before it has given rise to

recognizable signs or symptoms. The same thing may occur also in other parts of the body. If an individual with such an old tuberculous focus contracts an acute illness, as for instance influenza, measles, or whooping-cough, or gets run down in general health from overwork, worry, or unhygienic conditions of life, the tubercle germs may again become active. They may lead to extension of the old local trouble in the glands, lungs, or elsewhere, or they may pass into the blood stream and set up mischief in distant parts. Sometimes they enter the blood in such enormous numbers that they infect all parts of the body, and the patient dies in a few weeks from that inevitably fatal condition—general tuberculosis. The only way of guarding against the occurrence of such fresh outbreaks of old tuberculous disease is by keeping the general health at as high a level as possible, and by taking special care during convalescence after any acute illness.

CHAPTER VIII

CONCLUSION

THERE are some factors which make for the prolongation of life concerning which it is difficult to write definitely. In regard to alcohol, food, exercise, etc., we can lay down fairly fixed rules, because these are things which influence the body and are therefore subject to recognized physical laws; but there are agents acting upon the mind of a far less tangible character, about which it is hardly possible to give any precise advice, and yet which have a very real influence upon health and longevity. The matter may perhaps best be summed up by saying that for the enjoyment of the fullest health there is needed a quiet mind and freedom from worry. Work within reasonable limits is distinctly beneficial and promotes the highest possible level of efficiency; in fact, some of the hardest workers of the world have also furnished some of the most conspicuous examples of long life (*e.g.* Mr. W. E. Gladstone and Lord Roberts): it is worry—not work—that kills. The ambitious

man who makes haste to be rich or who is constantly striving after place or power, the man who is incessantly engaged in big schemes of speculation, the man who rapidly makes a fortune only to lose it again almost as quickly, he who embarks on great adventures beyond his strength or powers to carry through, the gambler, the schemer, let not these men think that their lives will be prolonged, or that even if they attain the success for which they so constantly and frantically strive they are likely to live long to enjoy it. Equally bad is a long and hopeless struggle with poverty or other adverse conditions. Well may he who wants to reach old age say with the Wise Man, "Give me neither poverty nor riches." The New Testament writers preach not only a moral but a physical Gospel when they urge contentment as one of the ideals of life: "Be content with such things as ye have"; "Having food and raiment let us be therewith content"; "I have learned, in whatsoever state I am, therewith to be content." These and other passages which might be quoted embody great truths, which if only realized and acted upon, would save many a man from an unhappy life and a premature death. Worries and troubles, of course, no one can hope to escape: the greatest joys and the deepest sorrows of life are too inextricably interwoven to render this possible. Some men, moreover, temperamentally always

meet trouble half-way, and doubtless many people looking back over the past can truly say that their greatest troubles have never come to pass; but at any rate we may try so to rule our lives that we shall not suffer from worries and anxieties which are but the natural result of our own foolish actions.

We may note here, too, the important effect of the emotions upon the activities of the body, and especially upon the vital organs of the circulation. Sir Clifford Allbutt has well said, "Few drugs are more helpful than hope, none more deadly than despair." The poets have long recognized the powerful effect both of pleasant and of depressing emotions upon the circulation: "A merry heart doeth good like a medicine"; "Hope deferred maketh the heart sick." We speak of the heart leaping for joy and of death from a broken heart, but in these highly prosaic days we are apt to regard such sayings as mere figures of speech, unworthy the attention of a practical folk. In reality there is much literal truth in them; for hope, joy, and pleasurable anticipations do undoubtedly stimulate the circulation, just as fear, grief, disappointment, and worry depress not only the heart but also the activities of all the organs of the body, witness the loss of appetite and the symptoms of indigestion which so often result from a spell of worry or from the receipt of bad

news. It is true that actual rupture of the heart is one of the rarest causes of death, but it is equally certain that a profound disappointment or a great and enduring grief may materially shorten life by its effect upon all the bodily functions, but most of all through its depressing effect upon the circulation.

Perhaps if one had to give in the shortest compass the best possible advice as to the preservation of life and health, one would recommend *moderation in all things*, always bearing in mind that "moderation" must necessarily be a relative term, and that what is "moderation" for one man may be excess for another; it is for each one of us to find out his own limitations and to work and live accordingly. There are few, if any, even of the good things of life which may not be used or enjoyed to excess, and so become curses rather than blessings. For example, work, of some kind or another, is essential for health and happiness, but too much work leads to worry, sleeplessness, insufficient exercise, hurried meals, indigestion, and so on. Exercise is essential, but too much of it, especially under unsuitable conditions, may easily do irreparable harm. Food is still more essential, yet how many men by eating to excess sow the seeds of future invalidism and premature death. Sleep is another essential, and many evils may come from its curtailment in the stress and

turmoil of a strenuous life, yet how much wisdom there is in the warning, "Love not sleep, lest thou come to poverty." The moderate use of tobacco may add a harmless pleasure to life, its excessive use may easily give rise to unpleasant and possibly serious consequences. The same may be said even of alcoholic drinks, except that with these the lines of moderation must be drawn with exceeding strictness. So one might enumerate all the things which make up our daily lives, and the same truth holds good that moderation is called for in every one. There are no short cuts to health and happiness any more than there are to knowledge; everything depends upon obedience to law and upon a strict regulation of the passions and appetites. We can no more evade the consequences of the way in which we treat our bodies than we can escape from the law of gravitation. Let not men think that any drugs will ever enable them to do so. It would be one of the greatest disasters which could happen in the world if by the use of medicines or in any other way we could escape from the natural consequences of our actions. The preservation of health and life depends upon obedience to law, and the sooner we learn nature's laws the better. In civilized countries ignorance of the law is not recognized as an excuse for breaking it, and in the physical world the same rule is acted upon in the strictest fashion.

As the years go by, and as "the sixth age shifts into the lean and slipper'd pantaloon," it is necessary that the activities of life should gradually be lessened, that the harness be loosened, the responsibilities diminished, the tension relaxed, the strain of life eased. Sudden, violent muscular exertion should be avoided (such as running to catch a train or a bus), for as old age creeps on the reserve strength of the heart is gradually used up, and any undue and especially any sudden strain upon it may have serious consequences. At the same time, so long as a fair amount of mental and physical vigour is retained, it is not only unnecessary, but also most undesirable, that work should be entirely given up. All the faculties, whether of body or mind, are maintained in activity longest by judicious use, always stopping short of actual fatigue. Throughout life disuse of any faculty or of any part of the body is inevitably followed by atrophy, but disuse in later life, when atrophy is already beginning, greatly accelerates the process. How often do men who retire more or less abruptly and prematurely from the active life to which they have always been accustomed rapidly sink into dotage or death, whereas so long as they continue to go quietly along the old lines they may remain usefully and happily employed up to an advanced age. Although increasing years tend to bring

restrictions and perhaps definite infirmities, yet there is as a rule no reason why the period of old age should be one of unhappiness or depression, provided that life has been well ruled and the passions strictly controlled in the earlier years :

Though I look old, yet I am strong and lusty ;
For in my youth I never did apply
Hot and rebellious liquors in my blood ;
Nor did not with unbashful forehead woo
The means of weakness and debility.
Therefore my age is as a lusty winter,
Frosty, but kindly.

What a contrast to the lines of Byron, written three months before his death, when he was still only thirty-six years old,

My days are in the yellow leaf,
The flower, the fruits of love are gone,
The worm, the canker and the grief
Are mine alone,—

words which remind us of those in the Book of Job, “ His bones are full of the sin of his youth, which shall lie down with him in the dust.”

Finally, to all there comes the time “when man goeth to his long home, and the mourners go about the streets” : but death in old age should have no terrors ; it is as natural as growth in childhood, and is in harmony with all the processes of nature. “Thou shalt come to thy grave in a full age, like as a shock of corn cometh in in his season.” The light of eventide,

softened and mellowed, passes into what we call the darkness of the night, and we are sad, because

Death puts our lives so far apart
We cannot hear each other speak.

But the falling leaf in autumn and the barren landscape of the winter presage the resurrection of springtide; the sunset here is the sunrise in another hemisphere; the great laws of the conservation of energy and the indestructibility of matter teach us that nothing is really lost,—

That nothing walks with aimless feet;
That not one life shall be destroyed,
Or cast as rubbish to the void,
When God hath made the pile complete.

And so “shall the dust return to the earth as it was: and the spirit shall return unto God who gave it.”

We can close with no more appropriate lines than those of Southey:

“You are old, Father William,” the young man cried,
“The few locks that are left you are gray;
You are hale, Father William, a hearty old man,
Now tell me the reason, I pray.”

“In the days of my youth,” Father William replied,
“I remember’d that youth would fly fast,
And abused not my health and my vigour at first,
That I never might need them at last.”

CONCLUSION

III

“You are old, Father William,” the young man cried,
“And pleasures with youth pass away,
And yet you lament not the days that are gone,
Now tell me the reason, I pray.”

“In the days of my youth,” Father William replied,
“I remember’d that youth could not last ;
I thought of the future, whatever I did,
That I never might grieve for the past.”

“You are old, Father William,” the young man cried,
“And life must be hastening away ;
You are cheerful, and love to converse upon death !
Now tell me the reason, I pray.”

“I am cheerful, young man,” Father William replied,
“Let the cause thy attention engage :
In the days of my youth I remember’d my God !
And He hath not forgotten my age.”

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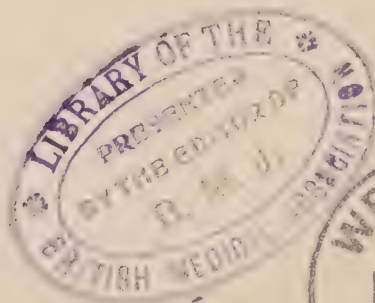
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